



Rocky Flats Environmental Technology Site

TYPE 1 RECONNAISSANCE LEVEL CHARACTERIZATION REPORT (RLCR)

**AREA 5-GROUP 16 CLOSURE PROJECTS
(Buildings 952, T974A, 988, 988A, 990, 990A and 995)**

REVISION 0

September 3, 2003

**CLASSIFICATION REVIEW NOT REQUIRED PER
EXEMPTION NUMBER CEX-005-02**

ADMIN RECORD

IA-A-001698

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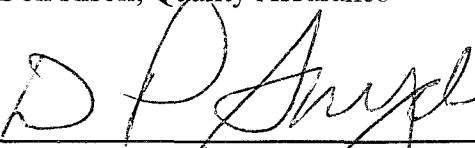
September 3, 2003

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ABBREVIATIONS/ACRONYMS

ACM	Asbestos containing material
Be	Beryllium
CDPHE	Colorado Department of Public Health and the Environment
CERCLA	Comprehensive Emergency Response, Compensation and Liability Act
DCGL _{EMC}	Derived Concentration Guideline Level – elevated measurement comparison
DCGL _W	Derived Concentration Guideline Level – Wilcoxon Rank Sum Test
D&D	Decontamination and Decommissioning
DDCP	Decontamination and Decommissioning Characterization Protocol
DOE	U.S. Department of Energy
DPP	Decommissioning Program Plan
DQA	Data quality assessment
DQOs	Data quality objectives
EPA	U.S. Environmental Protection Agency
FDPM	Facility Disposition Program Manual
HVAC	Heating, ventilation, air conditioning
HSAR	Historical Site Assessment Report
IHSS	Individual Hazardous Substance Site
IWCP	Integrated Work Control Package
K-H	Kaiser-Hill
LBP	Lead-based paint
LLW	Low-level waste
MARSSIM	Multi-Agency Radiation Survey and Site Investigation Manual
MDA	Minimum detectable activity
MDC	Minimum detectable concentration
NORM	Naturally occurring radioactive material
NRA	Non-Rad-Added Verification
OSHA	Occupational Safety and Health Administration
PARCC	Precision, accuracy, representativeness, comparability and completeness
PCBs	Polychlorinated Biphenyls
PDS	Pre-demolition survey
QC	Quality Control
RCRA	Resource Conservation and Recovery Act
RFCA	Rocky Flats Cleanup Agreement
RFETS	Rocky Flats Environmental Technology Site
RFFO	Rocky Flats Field Office
RLC	Reconnaissance Level Characterization
RLCR	Reconnaissance Level Characterization Report
RSP	Radiological Safety Practices
SVOCs	Semi-volatile organic compounds
TCLP	Toxicity Characteristic Leaching Procedure
TSA	Total surface activity
VOCs	Volatile organic compounds

EXECUTIVE SUMMARY

A Reconnaissance Level Characterization (RLC) was performed to enable facility "Typing" per the DPP (10/8/98) and compliant disposition and waste management of the Area 5-Group 16 facilities (i.e., Buildings 952, T974A, 988, 988A, 990, 990A and 995). Because these facilities were anticipated Type 1 facilities, the characterization was performed in accordance with the Pre-Demolition Survey Plan (MAN-127-PDSP). All facility surfaces were characterized in this RLC, including the interior and exterior surfaces [i.e., floors (slabs), walls, ceilings, roofs and equipment]. Environmental media beneath and surrounding the facilities were not within the scope of this RLCR and will be addressed at a future date using the Soil Disturbance Permit process and in compliance with RFCA.

The RLC encompassed both radiological and chemical characterization to enable compliant disposition and waste management pursuant to the D&D Characterization Protocol (MAN-077-DDCP). The characterization built upon physical, chemical and radiological hazards identified in the facility-specific Historical Site Assessment Report.

Results indicate that no radiological contamination exists in excess of the PDSP unrestricted release limits of DOE Order 5400.5. All bulk sample results of building materials suspected of containing asbestos were negative or "None Detected". All beryllium sample results were less than $0.1 \mu\text{g}/100\text{cm}^2$. Fluorescent light ballasts may contain PCBs. Any PCB ballasts and hazardous-waste items will be removed and disposed of in compliance with Environmental Protection Agency (EPA) and Colorado Department of Public Health and Environment (CDPHE) regulations. All demolition debris will be managed in compliance with regulations governing PCBs (40 CFR 761), and Environmental Compliance Guidance #27, *Lead-Based Paint (LBP) and Lead-Based Paint Debris Disposal*, as applicable. All concrete associated with these facilities meets the criteria for recycling concrete per the RFCA RSOP for Recycling Concrete.

Based upon this RLCR, the Area 5-Group 16 facilities are considered Type 1 facilities. To ensure the facilities remain free of contamination and RLC data remain valid, Level 2 Isolation Controls have been established and the facilities posted accordingly.

1 INTRODUCTION

A Reconnaissance Level Characterization (RLC) was performed to enable compliant disposition and waste management of the Area 5-Group 16 facilities (i.e., Buildings 952, T974A, 988, 988A, 990, 990A and 995). Because these facilities were anticipated Type 1 facilities, a PDS characterization was performed. All facility surfaces were characterized in this RLC, including the interior and exterior surfaces of the facilities [i.e., floors (slabs), walls, ceilings, roofs and equipment]. Environmental media beneath and surrounding the facilities were not within the scope of this RLC Report (RLCR) and will be addressed at a future date using the Soil Disturbance Permit process and in compliance with RFCA.

As part of the Rocky Flats Environmental Technology Site (RFETS) Closure Project, numerous facilities will be removed, among these are the Area 5-Group 16 facilities. The locations of these facilities are shown in Attachment A, *Facility Location Map*. These facilities no longer support the RFETS mission and will be removed to reduce Site infrastructure, risks and/or operating costs.

Before the facilities can be removed, a Pre-Demolition Survey (PDS) must be conducted; this document presents the PDS results. The RLC was conducted pursuant to the Decontamination and Decommissioning Characterization Protocol (MAN-077-DDCP) and the Pre-Demolition Survey Plan for D&D Facilities (MAN-127-PDSP). The RLC built upon physical, chemical and radiological hazards identified in the facility-specific Historical Site Assessment Report.

1.1 Purpose

The purpose of this report is to communicate and document the results of the RLC effort. A RLC is performed before Type 1 building demolition to define the pre-demolition radiological and chemical conditions of a facility. Pre-demolition conditions are compared with the release limits for radiological and non-radiological contaminants. RLC results will enable project personnel to make final disposition decisions, develop related worker health and safety controls, and estimate waste volumes by waste types.

1.2 Scope

This report presents the pre-demolition radiological and chemical conditions of the Area 5-Group 16 facilities. Environmental media beneath and surrounding the facilities are not within the scope of this RLCR and will be addressed using the Soil Disturbance Permit process and in compliance with RFCA.

1.3 Data Quality Objectives

The Data Quality Objectives (DQOs) used in designing this RLC were the same DQOs identified in the Pre-Demolition survey Plan for D&D Facilities (MAN-127-PDSP.) Refer to section 2.0 of MAN-127-PDSP for these DQOs.

2 HISTORICAL SITE ASSESSMENT

Facility-specific Historical Site Assessments (HSAs) were conducted to understand facility histories and related hazards. The assessments consisted of facility walkdowns, interviews, and document review, including review of the Historical Release Report (refer to the D&D Characterization Protocol, MAN-077-DDCP). Results were used to identify data gaps and needs, and to develop radiological and chemical characterization packages. Results of the facility-specific HSAs were documented in a facility-specific *Historical Site Assessment Report (HSAR) for Area 5-Group 16 facilities*, Dated December 2002, Revision 0 and *Historical Site Assessment Report for the Area 5-Group 17 facilities*, Dated April 2003, Revision 1 (Building 988A only). Refer to Attachment B, *Historical Site Assessment Reports* for copies of these HSARs. In summary, the HSARs identified the potential for radiological and chemical hazards, specifically, asbestos containing materials and RCRA/CERCLA concerns.

3 RADIOLOGICAL CHARACTERIZATION AND HAZARDS

The Area 5-Group 16 facilities were characterized for radiological hazards per the PDSP. Radiological characterization was performed to define the nature and extent of radioactive materials that may be present on the facility surfaces. Measurements were performed to evaluate the contaminants of concern. Based upon a review of historical and process knowledge, building walk-downs, and MARSSIM guidance, a Radiological Characterization Plan was developed during the planning phase that describes the minimum survey requirements (refer to the RISS Characterization Project files).

Seven radiological survey packages were developed for the interior and exterior surfaces of the Area 5-Group 16 facilities: 952-5-001 (Building 952), T974A-5-002 (Building T974A), 988-5-003 (Building 988), 988A-5-001 (Building 988A), 990-5-004 (Building 990), 990A-5-005 (Building 990A) and 995-5-006 (Building 995). The seven survey packages were developed in accordance with Radiological Safety Practices (RSP) 16.01, *Radiological Survey/Sampling Package Design, Preparation, Control, Implementation and Closure*. Total surface activity (TSA), removable surface activity (RSA), and scan measurements were collected in accordance with RSP 16.02 *Radiological Surveys of Surfaces and Structures*. Radiological survey data were verified, validated and evaluated in accordance with RSP 16.04, *Radiological Survey/Sample Data Analysis*. Quality control measures were implemented relative to the survey process in accordance with RSP 16.05, *Radiological Survey/Sample Quality Control*. Radiological survey data, statistical analysis results, and survey locations are presented in Attachment C, *Radiological Data Summary and Survey Maps*. The radiological survey unit packages are maintained in the RISS Characterization Project files.

Two hundred and fifteen (215) TSA measurements (105 random, 45 biased, 50 equipment and 15 QC) and two hundred (200) RSA measurements (105 random, 45 biased and 50 equipment); and a minimum of 5% of the interior and exterior surfaces of each of the Area 5-Group 16 facilities (except building 988A) were scanned at biased locations. A minimum of 25% of the interior and exterior surfaces of building 988A were scanned at biased locations. The RLC data confirmed that these facilities do not contain radiological contamination above the surface contamination guidelines provided in the PDSP. Radiological survey data, statistical analysis results, and survey locations are presented in Attachment C, *Radiological Data Summary and Survey Maps*. The radiological survey unit packages are maintained in the RISS Characterization Project files. Level 2 Isolation Control postings are displayed on the buildings to ensure no radioactive materials are inadvertently introduced.

4 CHEMICAL CHARACTERIZATION AND HAZARDS

The Area 5-Group 16 facilities were characterized for chemical hazards per the PDSP. Chemical characterization was performed to determine the nature and extent of chemical contamination that may be present on, or in the facilities. Based upon a review of historical and process knowledge, visual inspections, and PDSP DQOs, additional sampling needs were determined. A Chemical Characterization Plan (refer to RISS Characterization Project files) was developed during the planning phase that describes sampling requirements, the justification for the sample locations and estimated sample numbers. Contaminants of concern included asbestos, beryllium, RCRA/CERCLA constituents, metals and PCBs.

4.1 Asbestos

A visual survey of building materials suspected of containing asbestos was conducted in the Area 5-Group 16 facilities in accordance with the PDSP. A CDPHE-certified asbestos inspector conducted the inspection and sampling in accordance with the *Asbestos Characterization Protocol, PRO-563-ACPR, Revision 1*. Building materials suspected of containing asbestos were identified for sampling at the discretion of the inspector.

No building materials suspected of containing asbestos were identified during the visual and tactile inspection of Buildings 952, T974A, 988A, and 990, therefore, asbestos sampling and analysis was not performed as part of the RLC in these buildings. All laboratory results of bulk samples taken in Buildings 988, 990A and 995 were "None Detected". Refer to Attachment D, *Chemical Data Summaries and Sample Maps*, for details on sample results and sample locations.

4.2 Beryllium (Be)

Based on the HSARs and personnel interviews, the Area 5-Group 16 facilities were anticipated Type 1 facilities. There was not, however, adequate historical and process knowledge to conclude that beryllium was not used or stored in these buildings. Therefore, biased beryllium sampling was performed in accordance with the PDSP and the *Beryllium Characterization Procedure, PRO-536-BCPR, Revision 0, September 9, 1999*. Biased sample locations corresponded with the most probable areas of dust accumulation (including beryllium dust), assuming airborne deposition.

All beryllium smear sample results were less than $0.1 \mu\text{g}/100\text{cm}^2$. Beryllium laboratory sample data and location maps are contained in Attachment D, *Chemical Data Summaries and Sample Maps*.

4.3 RCRA/CERCLA Constituents [including metals and volatile organic compounds (VOCs)]

Based on a review of the HSAR, and facility walkdowns, buildings T974A, 988, 988A, 990, 990A, and 995 are part of the RFETS sanitary waste treatment system and have had small amounts of RCRA/CERCLA constituents pass through the system. However, sludge in the system is routinely analyzed prior to disposal and has never been characterized as hazardous. Building 952 has functioned as a toxic gas storage facility, and does not contain any visual or recorded evidence of contamination. Therefore, RCRA/CERCLA constituent sampling was not performed in these facilities as part of this RLC. The need for sampling could change depending on unforeseen future events during the treatment facility's operational life.

Sampling for lead in paint in the Area 5-Group 16 facilities was not performed. Environmental Waste Compliance Guidance #27, *Lead-based Paint (LBP) and Lead-based paint Debris Disposal*, states that LBP debris generated outside of currently identified high contamination areas shall be managed as non-hazardous (solid) wastes, and additional analysis for characteristics of hazardous waste derived from LBP is not a requirement for disposal.

The buildings may contain some RCRA regulated items, such as mercury thermostats, fluorescent light bulbs, mercury vapor light bulbs, mercury containing gauges, circuit boards, leaded glass and lead-acid batteries. These items will be removed prior to demolition and managed in accordance with the Colorado Hazardous Waste Act.

4.4 Polychlorinated Biphenyls (PCBs)

Based on the HSARs, interviews and facility walkdowns of the Area 5-Group 16 facilities, no PCB-containing equipment were ever present in any of the facilities, making the potential for PCB contamination resulting from spills highly unlikely. Therefore, PCB sampling was not performed in these facilities as part of this RLC.

All of the Area 5-Group 16 facilities, except T974A, were originally constructed prior to 1980. Therefore, paints used on the facilities are assumed to contain PCBs, and painted surfaces will be managed as PCB Bulk Product Waste. Because T974A was constructed after 1980, the paint does not contain PCBs and the demolition debris can be characterized as sanitary waste.

Some of the facilities may contain fluorescent light ballasts containing PCBs. Fluorescent light fixtures will be inspected to identify PCB ballasts during removal operations. PCB ballasts will be identified based on factors such as labeling (e.g., PCB-containing and non PCB-containing), manufacturer, and date of manufacturing. All ballasts that do not indicate non PCB-containing are assumed to be PCB-containing and, if not leaking, or more than 9 pounds, will remain with the building and be disposed of as PCB Bulk Product Waste. If non-leaking PCB ballasts are left in the building during demolition, the debris will be managed as PCB Bulk Product Waste.

5 PHYSICAL HAZARDS

Physical hazards associated with the Area 5-Group 16 facilities consist of those common to standard industrial environments and include hazards associated with energized systems, utilities, and trips and falls. There are no unique hazards associated with the facilities. However, care should be taken during demolition activities as Building 952 is located near PAC 900-183 (Gas Detoxification Area-NFA Approved 2001, PAC 900-155 (900 Lip Area-Active) and PAC 900-140 (Hazardous Disposal Area-Proposed NFA 1998), and Buildings T974A, 988, 988A, 990, 990A and 995 are located near PAC 000-500 (Sanitary Sewer System-Active). The facilities have been relatively well maintained and are in good physical condition, and therefore, do not present hazards associated with building deterioration. Physical hazards are controlled by the Site Occupational Safety and Industrial Hygiene Program, which is based on OSHA regulations, DOE orders, and standard industry practices.

6 DATA QUALITY ASSESSMENT

Data used in making management decisions for decommissioning of the Area 5-Group 16 facilities, and consequent waste management, are of adequate quality to support the decisions documented in this report. The data presented in this report (Attachments C and D) were verified and validated relative to DOE quality requirements, applicable EPA guidance, and original DQOs of the project.

In summary, the Verification and Validation (V&V) process corroborates that the following elements of the characterization process are adequate:

- ◆ the *number* of samples and surveys;
- ◆ the *types* of samples and surveys;
- ◆ the sampling/survey process as implemented “in the field”; and,
- ◆ the laboratory analytical process, relative to accuracy and precision considerations.

Details of the DQA are provided in Attachment E.

7 DECOMMISSIONING WASTE TYPES AND VOLUME ESTIMATES

The demolition and disposal of the Area 5-Group 16 facilities will generate a variety of wastes. Estimated waste types and waste volumes are presented below by facility. All waste can be disposed of as sanitary waste, PCB Bulk Product Waste, or hazardous-waste items (e.g., mercury thermostats, fluorescent light bulbs, mercury vapor light bulbs, mercury containing gauges, circuit boards, leaded glass and lead-acid batteries). There is no radioactive or beryllium waste. Leaking PCB ballasts, and hazardous waste items will be removed prior to demolition and disposed of pursuant to Site waste management procedures. All concrete associated with these facilities meet the criteria for recycling concrete per the RFCA RSOP for Recycling Concrete.

Waste Volume Estimates and Material Types - Area 5 - Group 16							
Facility	Concrete (cu ft)	Wood (cu ft)	Metal (cu ft)	Corrugated Sheet Metal (cu ft)	Wall Board (cu ft)	ACM (cu ft)	Other Waste (cu ft)
952	200	0	100	250	0	0	None
T974A	0	0	400	0	0	0	None
988	2,000	0	200	400	0	0	None
988A	400	0	200	200	0	0	None
990	400	0	100	0	0	0	None
990A	300	0	50	0	0	0	None
995	6,000	0	800	0	700	0	None

8 FACILITY CLASSIFICATION AND CONCLUSIONS

Based on the analysis of radiological, chemical and physical hazards, the Area 5-Group 16 facilities (i.e., Buildings 952, T974A, 988, 988A, 990, 990A and 995) are classified as RFCA Type 1 facilities pursuant to the RFETS Decommissioning Program Plan (DPP; K-H, 1999) and can be demolished or sold to offsite commerce. The Type 1 classification is based on a review of historical and process knowledge, and newly acquired RLC data.

The RLC of the Area 5-Group 16 facilities was performed in accordance with the DDCP and PDSP. All PDSP DQOs were met, and all data satisfied the PDSP DQA criteria. These facilities do not contain radiological or beryllium wastes. Any PCB ballasts or hazardous-waste items will be managed and disposed of in compliance with Environmental Protection Agency (EPA) and Colorado Department of Public Health and Environment (CDPHE) regulations. All demolition debris will be managed in compliance with regulations governing PCBs (40 CFR 761), and Environmental Compliance Guidance #27, *Lead-Based Paint (LBP) and Lead-Based Paint Debris Disposal*, as applicable.

All concrete associated with these facilities meet the criteria for recycling concrete per the RFCA RSOP for Recycling Concrete. Environmental media beneath and surrounding the facilities will be addressed at a future date using the Soil Disturbance Permit process and in compliance with RFCA. To ensure these Type 1 facilities remain free of contamination and RLC data remain valid, Level 2 Isolation Controls have been established and the facilities posted accordingly.

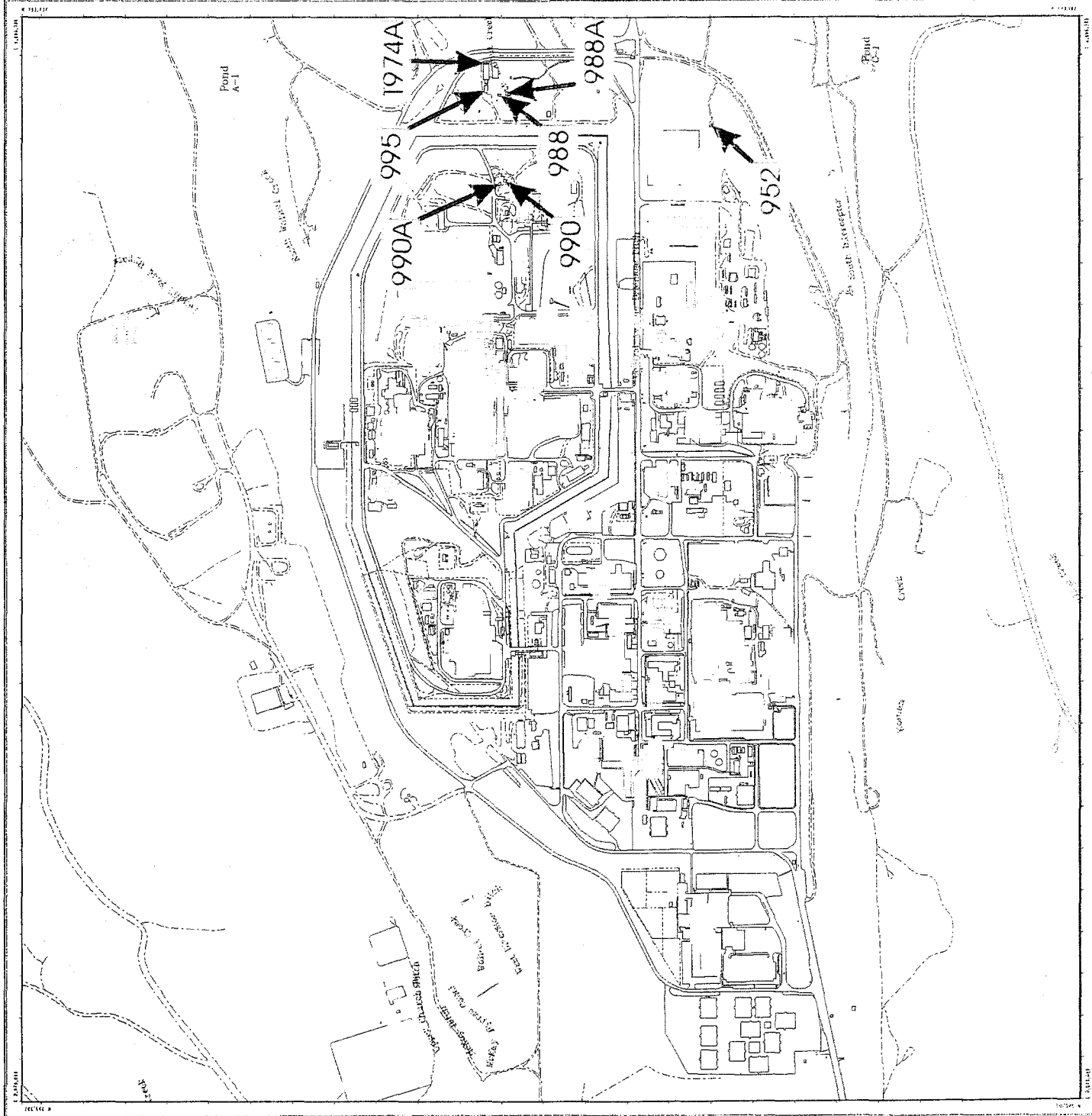
9 REFERENCES

- DOE/RFFO, CDPHE, EPA, 1996. *Rocky Flats Cleanup Agreement (RFCA)*, July 19, 1996.
- DOE Order 5400.5, "Radiation Protection of the Public and the Environment."
- EPA, 1994. "The Data Quality Objective Process," EPA QA/G-4.
- K-H, 1999. *Decommissioning Program Plan*, June 21, 1999.
- MAN-131-QAPM, *Kaiser-Hill Team Quality Assurance Program*, Rev. 1, November 1, 2001.
- MAN-076-FDPM, *Facility Disposition Program Manual*, Rev. 3, January 1, 2002.
- MAN-077-DDCP, *Decontamination and Decommissioning Characterization Protocol*, Rev. 3, July 15, 2002.
- MAN-127-PDSP, *Pre-Demolition Survey Plan for D&D Facilities*, Rev. 1, July 15, 2002.
- MARSSIM - *Multi-Agency Radiation Survey and Site Investigation Manual*, December 1997 (NUREG-1575, EPA 402-R-97-016).
- PRO-475-RSP-16.01, *Radiological Survey/Sampling Package Design, Preparation, Control, Implementation, and Closure*, Rev. 1, May 22, 2001.
- PRO-476-RSP-16.02, *Pre-Demolition (Final Status) Radiological Surveys of Surfaces and Structures*, Rev. 1, May 22, 2001.
- PRO-477-RSP-16.03, *Radiological Samples of Building Media*, Rev. 1, May 22, 2001.
- PRO-478-RSP-16.04, *Radiological Survey/Sample Data Analysis for Final Status Survey*, Rev. 1, May 22, 2001.
- PRO-479-RSP-16.05, *Radiological Survey/Sample Quality Control for Final Status Survey*, Rev. 1, May 22, 2001.
- PRO-563-ACPR, *Asbestos Characterization Procedure*, Revision 0, August 24, 1999.
- PRO-536-BCPR, *Beryllium Characterization Procedure*, Revision 0, August 24, 1999.
- RFETS, *Environmental Waste Compliance Guidance #25, Management of Polychlorinated Biphenyls (PCBs) in Paint and Other Bulk Product Waste During Facility Disposition*.
- RFETS, *Environmental Waste Compliance Guidance #27, Lead-Based Paint (LBP) and Lead-Based Paint Debris Disposal*.
- RFCA *Standard Operation Protocol for Recycling Concrete*, September 28, 1999.
- Historical Site Assessment Report for the Area 5-Group 16 facilities*, Dated December 2002, Revision 0.
- Historical Site Assessment Report for the Area 5-Group 17 facilities*, Dated April 2003, Revision 1 (Building 988A only).

ATTACHMENT A

Facility Location Map

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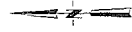


Area5-Group16 Building Cluster 952, 1974A, 988, 988A, 990, 990A & 995

Standard Map Features

- Buildings and other structures
- Demolished buildings and other structures
- Lakes and ponds
- Streams, ditches, or other drainage features
- Fences and other barriers
- Paved roads
- Dirt roads

DATA SOURCE BASE FEATURES:
Buildings, fences, hydrography, roads and other structures from 1994 aerial fly-over data captured by ES&G ISI, Las Vegas. Digitized from the orthophotographs. 1/95



Scale = 1 : 2450
1 inch represents approximately 1038 feet

Legend
State Plane Coordinate Projection
Colorado Central Zone
Datum: NAD27

U.S. Department of Energy
Rocky Flats Environmental Technology Site

Prepared by:
C-4422031 HLL



MAP ID: RY2003

Aug 25, 2003

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ATTACHMENT B

Historical Site Assessment Report

**D&D RISS Facility Characterization
Historical Site Assessment Report
December, 2002 Rev. 0**

Facility ID: (AREA 5 GROUP 16) Buildings 952, 988, 990, 990A, 995, and Trailer T974A.

Anticipated Facility Type (1, 2, or 3): Buildings 952, 988, 990, 990A, 995, and Trailer T974A are anticipated Type 1 facilities.

This facility-specific Historical Site Assessment (HSA) has been performed in accordance with:
D&D Characterization Protocol, RFETS MAN-077-DDCP, latest version, and
Facility Disposition Program Manual, RFETS MAN-076-FDPM, latest version

Physical Description

Building 952

Building 952 is a 100 square-foot building constructed in the late 1960s. This building is a non-insulated corrugated metal building mounted on a metal frame. Building 952 was constructed on a concrete slab and has a single entry door and several small vents on each of the four sides.

Building 952 has no utilities.

Building 988

Building 988 is a 1,224 square-foot building originally constructed in 1953 and modified in 1990. The original Building 988 was a cinder block building. In 1990 the building was enlarged. The roof was removed from the original building (the walls and floor remain) and the new structure was constructed around the old building. Under the building are the original wet well and dry well, which are still operational. Building 988 is an insulated concrete structure constructed on a concrete pad.

Building 988 has the following utilities: electric.

Building 990

Building 990 is a 222 square-foot building constructed in the early 1950s. Building 990 is a concrete cinder block building with a concrete foundation and a concrete slab roof and a built-up roofing system. Building 990 is a pre-aeration building that house two air compressors used to aerate raw swage in the north basin (constructed in the early 1950s) and the south basin (added in the 1970s).

Building 990 has the following utilities: electric.

Building 990A

Building 990A is a 200 square-foot building constructed in the early 1970s. Building 990A is a concrete cinder block building with a concrete foundation and a concrete slab roof with built-up roofing system. This building has a trench with a bar screen located in the floor slab.

Building 990A has the following utilities: electric.

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Building 995

Building 995 is a 6,000 square-foot building originally constructed in 1953. The original building was a poured concrete structure with a concrete foundation and a metal roof with a built-up roofing system. The building has had two additions added to the original structure. The first addition was in the late 1980s and was used to house upgraded monitoring instrumentation and increases the size of the on-site laboratory. The second addition was in the mid 1990s and added an additional on-site laboratory, office space, and restroom facilities. These additions were both constructed of concrete cinder block and a concrete foundation. The grit removed and Bar Screen for the wastewater treatment facility are free standing structures located east of Building 995 and do not have an individual facility number.

Building 995 has the following utilities: electric, natural gas, plant water, plant sanitary, and fire protection is provided by wall mounted fire extinguisher.

Trailer T974A

Trailer T974A is an 320 square-foot modified semi-truck trailer acquired in 1990. This trailer has aluminum sides and roof and a steel floor. This unit is considered a portable unit.

Building T974A has the following utilities: electric.

Historical Operations

Building 952

Building 952 was the Isolated Toxic Gas Storage Building and was operational from the mid 1960s to the mid 1980s. The building was used to store cylinders of toxic gasses. The area around the building was used to vent, neutralize and detoxified excess cylinders of gas. This activity is documented in PAC 900-183 "Gas Detoxification Area. This PAC had its NFA approved in 2001. See the 900-183 PAC for more information.

Building 988

Building 988 is the Tertiary Treatment Pump House and is used to house pumps, sand filters, and has a clear well and a dry well located under the floor slab. The original Building 988 had the roof removed and the large and newer Building 988 was constructed around the old building 988. See the Building Description above for more information about Building 988.

Building 990

Building 990 is the pre-aeration building and is used to house the compressors used to pre-aerate the raw sewage prior to entering the wastewater treatment plant. Raw sewage from both the PA and non-PA areas are piped to the diversion box near Building 990. Sewage may be directed to Building 995 or to the north or south basins (each 60,000 gallons) next to Building 990 as needed. Flow control at Building 990 may be used to regulate sewage during periods of high water usage or for containment of out of specification sewage. The north and south basins are large concrete basins with air diffusers located at the bottom of each basin. The north basin was part of the original Building 990 construction. The south basin was added in the early 1970s. This building and the north and south basins are operational but are normally only used during periods of high water generation.

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Building 990A

Building 990A houses a Bar-screen filtering unit and radiological monitoring equipment. Some believe that this building was constructed for security purposes and the Bar-screen and radiological monitoring equipment was used to detect and collect objects, which could be floated out of the process building via the sanitary sewer system.

Building 995

Building 995 was the main structure supporting the sanitary sewer system. This building houses support offices, on-site laboratories, furnaces and heat exchanger used to maintain a constant temperature in the system digesters. This building has been expanded several during its useful life. See Building Descriptions section above for more details on the building expansions. The sanitary sewer system received wastewater from a number of different sources. These sources include sinks, toilets, cooling tower blow-down, site laundry and floor drains from some areas in the process buildings. In the early days of operation, process waste with very low levels of radiological and chemical contamination was allowed to be discharge into the sanitary sewer system. This practice ended in the 1970s. In addition, during The 1969 Fire contaminated firewater entered the sanitary sewer system through floor drains. Treated waste is discharged to the B-Series ponds located northeast of the site.

Trailer T974A

Trailer T974A is a modified semi-truck trailer that housed a mobile sludge de-watering unit. This unit is used to de-water the sanitary sludge prior to the sludge being placed in the drying beds in Building 974 and 977.

Current Operational Status

The facilities addressed in this HSA are all currently operational.

Contaminants of Concern

Asbestos

Describe any potential, likely, or known sources of Asbestos:

Building 995 is the only building addressed in this HSA that has an asbestos posting. None of the facilities addressed in this HSA have had a comprehensive building inspection.

Beryllium (Be)

Describe any potential, likely, or known Be production or storage locations:

None of the facilities addressed in this HSA are on the RFETS list of Historic and Present Beryllium Areas.

Summarize any recent Be sampling results:

There is no recent Be data for the facilities addressed in this HSA.

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Lead

Describe any potential, likely, or known sources of Lead (e.g., paint, shielding, etc.):

Based on the age of some of the facilities addressed in this HSA, lead in paint should not be a concern. No processes containing lead were conducted in these facilities.

RCRA/CERCLA Constituents

Describe any potential, likely, or known sources of RCRA/CERCLA constituents (e.g., chemical storage, waste storage, and processes):

The primary chemicals used in the wastewater treatment process were lime and a polymer additive. The sanitary sewer system did not regularly receive RCRA/CERCLA waste streams, but in the past small volume of acids, bases, solvents and photo developing chemical historically where released to the sanitary sewer system. See the IHSS, PAC, or UBC section for additional release information.

Describe any potential, likely, or known spill locations (and sources, if any):

A chromium acid spill in 1989 killed the digestive microbes in the sanitary sewer system, which caused under treated waste to be discharged. This event was reported as part of the sanitary sewers system's NPDES permit.

Describe methods in which spills were mitigated, if any:

None.

PCBs

Describe any potential, likely, or known sources of PCBs (e.g., light ballasts, paints, equipment, etc.):

No PCB containing processes were housed in any of the facilities addressed in this HSA. No process equipment containing PCBs were located in any of these facilities. Given the age of some of these facilities PCBs in paint may be a concern.

Describe any potential, likely, or known spill locations (and sources, if any):

No PCB spills occurred in any of the Facilities addressed in this HSA.

Describe methods in which spills were mitigated, if any:

No PCB spills occurred in any of the Facilities addressed in this HSA.

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Radiological Contaminants

Describe any potential, likely, or known radiological production or storage locations:

Building 952 is located inside the PAC 900-155 "900 Lip Area" which has alpha contamination.

In the early days of the operation, low levels of radioactive material in waste was discharged to the sanitary sewer system. This practice was stopped in the 1970s. The 1969 plutonium fire also caused a discharge of radiological material to the sanitary sewer system. The elevated radiological material in the system was primarily caused by firewater used to control the fire entering the system through the floor drains in the effected areas. PAC 000-500, "Sanitary Sewer System" describes some of the releases to the sanitary sewer system. See the IHSS, PAC, or UBC section for additional release information.

Describe any potential, likely, or known spill locations (e.g., known leaking sealed radioactive sources, leaking waste drums, potentially contaminated drains, etc.):

PAC 900-155 "900 Lip Area" see the 900-155 for more detail about this PAC.

Describe methods in which spills were mitigated, If any:

None.

Describe any potential, likely, or known isotopes of concern (e.g., weapons grade plutonium, uranium isotopes, pure beta emitters, mixed fission products, etc.):

Isotopes of concern include uranium and plutonium.

Describe any potential, likely, or known external facility contamination (e.g., stack release points, unfiltered ventilation, facility's physical location to known site releases, etc.):

See section below for information on IHSSs PACs, and UBCs.

Environmental Restoration Concerns

Describe any ER concerns that could affect facility characterization (e.g., IHSSs, PACs, UBCs):

Building 952 is located on or near the following IHSSs, PACs, or UBCs. See individual IHSS, PAC, or UBC report for additional information.

- 1) PAC 900-183 "Gas Detoxification Area" NFA Approved 2001.
- 2) PAC 900-155 "900 Lip Area", Active.
- 3) PAC 900-140 "Hazardous Disposal Area", Proposed NFA 1998.

Building 995, 988, 990, 990A T974A 974 and 977 are all associated with following IHSSs, PACs, or UBCs. See individual IHSS, PAC, or UBC report for additional information.

- 1) PAC 000-500, "Sanitary Sewer System" Active

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Additional Information

Describe any additional information that may be useful during facility characterization (e.g., contaminant migration routes, waste handling operations, physical hazards, Historical Release Reports, WSRIC data, etc.):

None

References

Provide all sources of information utilized to gather data for facility history (e.g., documents, files, interviews):

Sources reviewed to complete this HSA were the RFETS Facility List, the Historical Release Report, Site Master List of RCRA Units, and the Site IHSS, PAC, and UBC databases. The WSRIC for those buildings with a WSRIC. In addition, a facility walkdown and interviews were performed.

Waste Volume Estimates and Material Types

Facility	Concrete (cu ft)	Wood (cu ft)	Metal (cu ft)	Corrugated Sheet Metal (cu ft)	Wall Board (cu ft)	ACM (cu ft)	Other Waste (cu ft)
Building 952	200	0	100	250	0	TBD	N/A
Building 988	2000	0	200	400	0	TBD	N/A
Building 990	400	0	100	0	0	TBD	N/A
Building 990A	300	0	50	0	0	TBD	N/A
Building 995	6000	0	800	0	700	TBD	N/A
Trailer T974A	0	0	400	0	0	TBD	N/A

Further Actions

Recommend any further actions; if any (e.g., characterization, decontamination, special handling, etc.):

Begin the RLC/PDS process.

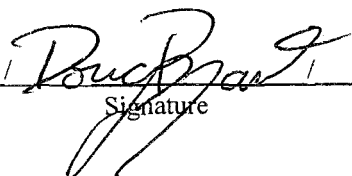
Note:

This HSA was performed prior to SME walkdowns, and chemical and radiological characterization package preparations. SMEs should evaluate and/or verify all information during the RLC/PDS process. SMEs may need to review additional documentation and perform additional interviews. Information contained in this HSA only represents a "snapshot" in time. Subsequent data may be obtained during SME walkdowns and chemical and radiological characterization package preparations, which may conflict with this report. However, this report will not be amended, and the newer data will take precedence over the data in this report. Newer Data will appear in the RLCR/PDSR.

Prepared By:

Doug Bryant

Name



Signature

December 2002

Date

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Facility ID: (AREA 5 GROUP 17)

Anticipated Facility Type (1, 2, or 3): Buildings 988A, 995-CCC-1, 995-CCC-2, 995-C-5, 995-EC1, 955-EC2, 995-EC3, 995-IC1, 995-IC2, and 995-IC3 are anticipated Type 1 facilities.

Buildings 974, 977, 995-AB-1 995-AB-2, 995-C-1, 995-C-2, 995-C-3, 995-C-4, 995-D1, and 995-D2 are anticipated Type 2 facilities.

This facility-specific Historical Site Assessment (HSA) has been performed in accordance with:
D&D Characterization Protocol, RFETS MAN-077-DDCP, latest version, and
Facility Disposition Program Manual, RFETS MAN-076-FDPM, latest version

Physical Description

Building 974

Building 974 is a 2,280 square-foot non-insulated metal building, used to house 4 sludge drying beds. The drying beds were originally only covered by a roof, but where enclosed in the late 1980s. The original drying beds were constructed of sand. In the late 1980s, concrete drying beds where constructed over the original sand drying beds.

Building 974 has the following utilities: electric.

Building 977

Building 974 is a 2,880 square-foot non-insulated metal building, used to house 4 sludge drying beds. The drying beds were originally only covered by a roof, but where enclosed in the late 1980s or early 1990s. The original drying beds were constructed of sand. In the late 1980s, concrete drying beds where constructed over the original sand drying beds. Building 977 has the following utilities: electric.

Building 988A

Building 988A is the 432 square-foot building constructed in 1996. This building is constructed of insulated metal sections mounted to a steel frame and a concrete floor.

Building 988A has the following utilities: electric.

Aeration Basins 995-AB-1 and 995-AB-2

The aeration basins are each approximately 625 square-feet and constructed of concrete. The north aeration basin (995-AB-1) was constructed in 1953 and the south aeration basin (995-AB-2) was constructed in the mid 1970s. These basins are open topped basins and are equipped with air diffusers to assist in the aeration process. The compressors used to aerate the basins are located in Building 988.

The Aeration Basins have the following utilities: electric.

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Chlorine Contact Basins 995-CCC-1 and 995-CCC-2

Chlorine Contact Basins 995-CCC-1 is approximately 65 square-feet. Chlorine Contact Basins 995-CCC-2 is approximately 200 square-feet. Both basins were built in 1953 and are constructed of concrete.

The Chlorine Contact Basins have the following utilities: electric.

Clarifier Basins 995-C-1, 995-C-2, 995-C-3, 995-C-4 and 995-C-5

Clarifier Basins 995-C-1 is approximately 200 square feet, 995-C-2 is approximately 300 square-feet, 995-C-3 is approximately 600 square-feet, 995-C-4 is approximately 650 square feet, and 995-C-5 is approximately 600 square-feet. Clarifier 995-C-1, 995-C-3, and 995-C-4, are concrete basins constructed as in 1953. Clarifier 995-C-2 and 995-C-5 are concrete basins constructed in the 1970s.

The Clarifier Basins have the following utilities: electric.

Digesters 995-D1 and 995-D2

The Digesters Basins 995-D1 and 995-D2 are approximately 500 square-foot concrete basins constructed in 1953.

The Digester Basins have the following utilities: electric.

Effluent Cells 995-EC1, 995-EC2 and 995-EC3,

The wastewater treatment plant has three 1,836 square-foot effluent cells that were constructed in 1996. These effluent treatment cells are concrete basins used to temporarily store wastewater prior to discharge to the B-Series Ponds. The effluent cells are located south east of Building 995.

The Effluent Cells have the following utilities: electric.

Influent Cells 995-IC1, 995-IC2 and 995-IC3.

The wastewater treatment plant has three 1,271 square-foot influent cells and that were constructed in 1996. These influent storage cells are concrete basins used to temporarily store wastewater entering the wastewater treatment facility and are located west of Building 995.

The Influent Cells have the following utilities: electric.

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Historical Operations

Building 974

The west side of Building 974 houses drying beds 1, 2, 3, and 4. The east side of Building 974 is used for general storage and houses some old out-of-service sludge drying equipment. Building 974 originally had sand drying beds and was an open-sided structure. In the late 1980s walls were added to the structure and the current concrete drying beds were constructed over the existing sand beds. These upgrades were performed to prevent wind-blown dispersion of the sludge and help prevent the occasional overflow from the sludge drying beds. PAC 900-141 "Sludge Dispersal" details some of the earlier events related to the sludge drying beds. PAC 900-141 had its NFA approved in 1997. Historically the sanitary sludge was designated as low-level waste. In the summer of 2002 the low-level waste designation was removed.

Building 977

Building 977 houses drying beds 5, 6 and 7. Building 977 originally had sand drying beds and was an open-sided structure. In the late 1980s walls were added to the structure and the current concrete drying beds were constructed over the existing sand beds. These upgrades were performed to prevent wind-blown dispersion of the sludge and help prevent the occasional overflow from the sludge drying beds. PAC 900-141 "Sludge Dispersal" details some of the earlier events related to the sludge drying beds. PAC 900-141 had its NFA approved in 1997. Historically the sanitary sludge was designated as low-level waste. In the summer of 2002 the low-level waste designation was removed.

Building 988A

Building 988A is the Ultraviolet Disinfecting Facility and delivers a lethal dose of ultraviolet light to any microorganisms remaining in the treated wastewater prior to being discharged to the B-Series Ponds.

Aeration Basins 995-AB-1 and 995-AB-2

The aeration basins are used to aerate the sewage to encourage bacterial growth. Sludge from the primary clarifier enters the aeration basin where it is mixed and aerated to promote biological decomposition of organic constituents in the wastewater.

Chlorine contact chambers 995-CCC-1 and 995-CCC-2

The chlorine contact basins are used to chlorinate the wastewater during the wastewater treatment process.

Clarifier Basins 995-C-1, 995-C-2, 995-C-3 and 995-C-4

Clarifier Basin 995-C-1 and 995-C-2 is the primary clarifiers and are used to settle out solids after the wastewater is passed through the grit remover and the bar screen. The secondary clarifiers, 995-C-3 and 995-C-4, receive wastewater after it has been aerated to help settle out solid material. Flocculent (primarily lime and a cationic polymer) are added in the tertiary clarifier (995-C-5) to settle out finer solids. The sludge collected from the bottom of the primary, secondary and tertiary clarifiers are returned to the digester basins for further processing.

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Digesters 995-D1 and 995-D2,

Sludge from the clarifier basins is sent to the digesters where the activated sludge breaks down the organic constituents. The digester basins have heat exchanges connected to heaters located in Building 995. The digester must be kept at a constant temperature in maximize the microbial action in the digester.

Effluent Cells 995-EC1, 955-EC2 and 995-EC3,

The effluent tanks are used to store wastewater so they can be evaluated to determine whether they need to be treated or discharged. The effluent and influent cells are connected by piping so their use is interchangeable.

Influent Cells 995-IC1, 995-IC2 and 995-IC3.

The primary purpose of the influent cells is to equalize flow to the wastewater treatment facility and prevent any toxic constituents from reaching the activated sludge system. The effluent and influent cells are connected by piping so their use is interchangeable.

Current Operational Status

The facilities addressed in this HSA are all currently operational.

Contaminants of Concern

Asbestos

Describe any potential, likely, or known sources of Asbestos:

Building 995 has asbestos posting. None of the facilities addressed in this HSA have had a comprehensive building inspection.

Beryllium (Be)

Describe any potential, likely, or known Be production or storage locations:

None of the facilities addressed in this HSA are on the RFETS list of Historic and Present Beryllium Areas.

Summarize any recent Be sampling results:

There is not recent Be data for the facilities addressed in this HSA.

Lead

Describe any potential, likely, or known sources of Lead (e.g., paint, shielding, etc.):

Based on the age of some of the facilities addressed in this HSA, lead in paint should not be a concern. No processes containing lead were conducted in these facilities.

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RCRA/CERCLA Constituents

Describe any potential, likely, or known sources of RCRA/CERCLA constituents (e.g., chemical storage, waste storage, and processes):

The primary chemicals used in the wastewater treatment process were chlorine, lime and a polymer flocculent. The sanitary sewer system did not regularly receive RCRA/CERCLA Waste streams, but historically small volumes of acids, bases, solvents and photo developing chemical were historically discharge to the sanitary sewer system. See the IHSS, PAC, or UBC section for additional release information.

Describe any potential, likely, or known spill locations (and sources, if any):

A chromium Acid spill in 1989 killed the digestive microbes in the sanitary sewer system which caused inadequately treated waste to be discharged. This event was reported as part of the sanitary sewers system's NPDES permit.

Describe methods in which spills were mitigated, if any:

None.

PCBs

Describe any potential, likely, or known sources of PCBs (e.g., light ballasts, paints, equipment, etc.):

No PCB containing process were housed in any of the facilities addressed in this HSA. No process equipment containing PCBs were located in any of these facilities. Given the age of some of these facilities PCBs in paint may be a concern.

Describe any potential, likely, or known spill locations (and sources, if any):

No PCB spills occurred in any of the Facilities addressed in this HSA.

Describe methods in which spills were mitigated, if any:

No PCB spills occurred in any of the Facilities addressed in this HSA.

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Radiological Contaminants

Describe any potential, likely, or known radiological production or storage locations:

In the early days of RFETS operations low levels of radioactive material in waste was discharged to the sanitary sewer system. This practice was stopped in the 1970s. The 1969 plutonium fire also caused a discharge of radiological material to the sanitary sewer system. The elevated radiological material in the system was primarily caused by firewater used to control the fire entering the system through the floor drains in the effected areas. PAC 000-500, "Sanitary Sewer System" describes some of the releases to the sanitary sewer system. See the IHSS, PAC, or UBC section for additional release information.

Describe any potential, likely, or known spill locations (e.g., known leaking sealed radioactive sources, leaking waste drums, potentially contaminated drains, etc.):

PAC 000-500, "Sanitary Sewer System" describes some of the releases to the sanitary sewer system. See the IHSS, PAC, or UBC section for additional release information.

Describe methods in which spills were mitigated, if any:

None.

Describe any potential, likely, or known isotopes of concern (e.g., weapons grade plutonium, uranium isotopes, pure beta emitters, mixed fission products, etc.):

Isotopes of concern include uranium and plutonium.

Describe any potential, likely, or known external facility contamination (e.g., stack release points, unfiltered ventilation, facility's physical location to known site releases, etc.):

See section below for information on IHSSs PACs, and UBCs.

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Environmental Restoration Concerns

Describe any ER concerns that could affect facility characterization (e.g., IHSSs, PACs, UBCs):

Buildings 974, 977, 988A, and Basins 995-AB-1 995-AB-2, 995-CCC-1, 995-CCC-2, 955-C-1, 995-C-2, 995-C-3, 995-C-4, 995-D1, 995-D2, 995-EC1, 955-EC2, 995-EC3, 995-IC1, 995-IC2, and 995-IC3 are associated or effected by the following IHSSs, PACs, or UBCs. See individual IHSS, PAC, or UBC report for additional information.

1) PAC 000-500, "Sanitary Sewer System" Active

Building 974 and 977 are located on the following IHSSs, PACs, and UBCs. See individual IHSS, PAC, or UBC report for additional information.

1) PAC 900-141 "Sludge Disposal", NFA approved 1997.

Building 977 are located near the following IHSSs, PACs, and UBCs. See individual IHSS, PAC, or UBC report for additional information.

1) PAC 000-190 "Caustic Leak " Active.

Additional Information

Describe any additional information that may be useful during facility characterization (e.g., contaminant migration routes, waste handling operations, physical hazards, Historical Release Reports, WSRIC data, etc.):

None

References

Provide all sources of information utilized to gather data for facility history (e.g., documents, files, interviews):

Sources reviewed to complete this HSA were the RFETS Facility List, the Historical Release Report, Site Master List of RCRA Units, and the Site IHSS, PAC, and UBC databases. The WSRIC for those buildings with a WSRIC. In addition, a facility walkdown and interviews were performed.

Waste Volume Estimates and Material Types

Facility	Concrete (cu ft)	Wood (cu ft)	Metal (cu ft)	Corrugated Sheet Metal (cu ft)	Wall Board (cu ft)	ACM (cu ft)	Other Waste (cu ft)
Building 974	1,200	0	300	500	0	TBD	N/A
Building 977	1,500	0	400	600	0	TBD	N/A
Building 988A	400	0	200	200	0	TBD	N/A
995-AB-1	600	0	100	0	0	TBD	N/A
995-AB-2	600	0	100	0	0	TBD	N/A
995-CCC-1	100	0	25	0	0	TBD	N/A
995-CCC-2	600	0	100	0	0	TBD	N/A
955-C-1	300	0	50	0	0	TBD	N/A
955-C-2	500	0	100	0	0	TBD	N/A
955-C-3	800	0	200	0	0	TBD	N/A
955-C-4	800	0	200	0	0	TBD	N/A

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995-D1	1,000	0	200	0	0	TBD	N/A
995-D2	1,000	0	200	0	0	TBD	N/A
995-EC-1	3,200	0	300	0	0	TBD	N/A
995-EC-2	3,200	0	300	0	0	TBD	N/A
995-EC-3	3,200	0	300	0	0	TBD	N/A
995-IC1	2,400	0	200	0	0	TBD	N/A
995-IC2	2,400	0	200	0	0	TBD	N/A
995-IC3	2,400	0	200	0	0	TBD	N/A

Further Actions

Recommend any further actions, if any (e.g., characterization, decontamination, special handling, etc.):

Begin the RLC/PDS process.

Note:

This HSA was performed prior to SME walkdowns, and chemical and radiological characterization package preparations. SMEs should evaluate and/or verify all information during the RLC/PDS process. SMEs may need to review additional documentation and perform additional interviews. Information contained in this HSA only represents a "snapshot" in time. Subsequent data may be obtained during SME walkdowns and chemical and radiological characterization package preparations, which may conflict with this report. However, this report will not be amended, and the newer data will take precedence over the data in this report. Newer Data will appear in the RLCR/PDSR.

Prepared By:

Duane Parsons



April 2003

Name

Signature

Date

ATTACHMENT C

Radiological Data Summaries and Survey Maps

SURVEY UNIT 952-5-001
RADIOLOGICAL DATA SUMMARY - PDS

Survey Unit Description: B952 (Interior & Exterior)

952-5-001
PDS Data Summary

Total Surface Activity Measurements

	25	25
	Number Required	Number Obtained
MIN	-4.2	dpm/100 cm ²
MAX	87.7	dpm/100 cm ²
MEAN	23.0	dpm/100 cm ²
STD DEV	27.1	dpm/100 cm ²
TRANSURANIC DCGL _w	100	dpm/100 cm ²

Removable Activity Measurements

	25	25
	Number Required	Number Obtained
MIN	-1.2	dpm/100 cm ²
MAX	3.6	dpm/100 cm ²
MEAN	-0.1	dpm/100 cm ²
STD DEV	1.2	dpm/100 cm ²
TRANSURANIC DCGL _w	20	dpm/100 cm ²

**SURVEY UNIT 952-5-001
TSA - DATA SUMMARY**

Manufacturer:	NE Tech	NE Tech	NE Tech	NE Tech
Model:	DP-6	DP-6	DP-6	DP-6
Instrument ID#:	1	2	3	4
Serial #:	1417	2404	1681	1260
Cal Due Date:	7/28/03	10/9/03	10/18/03	7/10/03
Analysis Date:	6/18/03	6/19/03	6/19/03	6/19/03
Alpha Eff. (c/d):	0.218	0.222	0.218	0.223
Alpha Bkgd (cpm)	0.7	5.0	4.0	0.7
Sample Time (min)	1.5	1.5	1.5	1.5
LAB Time (min)	1.5	1.5	1.5	1.5
MDC (dpm/100cm ²)	48.0	48.0	48.0	48.0

Sample Location Number	Instrument ID#:	Sample Gross Counts (cpm)	Sample Gross Activity (dpm/100cm ²)	LAB Gross Counts (cpm)	LAB Gross Activity (dpm/100cm ²)	Sample Net Activity (dpm/100cm ²) ¹
1	4	4.7	21.1	2.7	12.1	7.9
2	3	24.7	113.3	4.0	18.3	0.0
3	4	31.3	140.4	2.7	12.1	0.0
4	2	7.3	32.9	4.7	21.2	19.7
5	4	17.3	77.6	5.3	23.8	64.4
6	1	20.7	95.0	5.3	24.3	81.8
7	3	25.3	116.1	2.0	9.2	0.0
8	2	11.3	50.9	2.0	9.0	37.7
9	4	8.7	39.0	4.0	17.9	25.8
10	2	12.0	54.1	2.0	9.0	40.9
11	1	24.7	113.3	2.7	12.4	0.0
12	1	22.0	100.9	2.7	12.4	87.7
13	1	37.3	171.1	0.7	3.2	0.0
14	4	14.7	65.9	3.3	14.8	52.7
15	1	12.7	58.3	4.7	21.6	45.1
16	3	7.3	33.5	4.0	18.3	20.3
17	2	4.7	21.2	3.3	14.9	8.0
18	4	2.7	12.1	1.3	5.8	-1.1
19	4	3.3	14.8	1.3	5.8	1.6
20	3	2.0	9.2	0.7	3.2	-4.0
21	4	10.7	48.0	0.0	0.0	34.8
22	3	6.0	27.5	2.0	9.2	14.3
23	3	10.7	49.1	5.3	24.3	35.9
24	2	2.0	9.0	4.0	18.0	-4.2
25	4	4.0	17.9	2.0	9.0	4.7

1 - Average LAB used to subtract from Gross Sample Activity

13.2	Sample LAB Average
MIN	-4.2
MAX	87.7
MEAN	23.0
SD	27.1
Transuranic DCGL _w	100

QC Measurements

15 QC	3	12.7	58.3	4.7	21.6	44.6
16 QC	4	5.3	23.8	1.3	5.8	10.1

1 - Average QC LAB used to subtract from Gross Sample Activity

13.7	QC LAB Average
MIN	10.1
MAX	44.6
MEAN	27.3
Transuranic DCGL _w	100

2 -The initial Sample Net Activity was elevated for the locations listed below:

Location	dpm/100cm ²
2	100.1
3	127.2
7	102.9
11	100.1
13	157.9

A coupon sample was collected from location 13 and analyzed using the Canberra ISOCSS system. No transuranic isotopes were detected. Exposed metal sample activity was determined to be from uranium and naturally occurring isotopes. The Sample Net Activity for each of these locations is below the uranium DCGL_w limits (5000 dpm/100cm²).

All survey results are less than the applicable DCGLs, therefore, no further investigation is required.

On this basis, transuranic values for locations 2, 3, 7, 11 and 13 are reported as zero (0) net activity in the TSA Data Summary.

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**SURVEY UNIT 952-5-001
RSC - DATA SUMMARY**

Manufacturer:	Eberline	Eberline	Eberline	Eberline
Model:	SAC-4	SAC-4	SAC-4	SAC-4
Instrument ID#:	4	5	6	7
Serial #:	959	952	971	924
Cal Due Date:	7/9/03	7/9/03	8/6/03	10/23/03
Analysis Date:	6/13/03	6/13/03	6/13/03	6/13/03
Alpha Eff. (c/d):	0.33	0.33	0.33	0.33
Alpha Bkgd (cpm)	0.2	0.4	0.3	0.3
Sample Time (min)	2	2	2	2
Bkgd Time (min)	10	10	10	10
MDC (dpm/100cm²)	9.0	9.0	9.0	9.0

Sample Location Number	Instrument ID#	Gross Counts (cpm)	Net Activity (dpm/100 cm ²)
1	4	0	-0.6
2	5	1	0.3
3	6	0	-0.9
4	7	3	3.6
5	4	1	0.9
6	5	2	1.8
7	6	0	-0.9
8	7	0	-0.9
9	4	0	-0.6
10	5	1	0.3
11	6	0	-0.9
12	7	0	-0.9
13	4	0	-0.6
14	5	0	-1.2
15	6	0	-0.9
16	7	1	0.6
17	4	0	-0.6
18	5	0	-1.2
19	6	0	-0.9
20	7	0	-0.9
21	4	2	2.4
22	5	0	-1.2
23	6	1	0.6
24	7	1	0.6
25	4	0	-0.6
		MIN	-1.2
		MAX	3.6
		MEAN	-0.1
		SD	1.2
		Transuranic DCGL _w	20

35

Analysis Results Header

7/2/2003

8:54:42 AM

Page 1

***** GAMMA SPECTRUM ANALYSIS *****
** Canberra Mobile Laboratory Services **

Report Generated On : 7/2/2003 8:54:42 AM

RIN Number : 03S0251
Analytical Batch ID : 0307014453
Line Item Code : RC10C019

Filename: S:\GENIE2K\CAMFILES\LI009(D)\ORIG\D1900081.CNF

Sample Number : 03S0251-002.001
Lab Sample Number : CMLS-3095
Sample Receipt Date : 6/27/2003
Sample Volume Received : 7.80E+000 GRAM

Result Identifier : N/A

Peak Locate Threshold : 2.50
Peak Locate Range (in channels) : 100 - 8192
Peak Area Range (in channels) : 100 - 8192
Identification Energy Tolerance : 1.000 keV

Sample (Final Aliquot Size) : 7.800E+000 GRAM
Sample Quantity Error : 0.000E+000
Systematic Error Applied : 0.000E+000

Sample Taken On : 6/26/2003 2:22:00 PM
Acquisition Started : 7/1/2003 4:44:48 PM

Count Time : 7200.0 seconds
Real Time : 7200.6 seconds
Dead Time : 0.01 %

Energy Calibration Used Done On : 6/24/03
Energy = -0.274 + 0.250*ch + -6.39E-008*ch^2 + 5.91E-012*ch^3

Corrections Applied:
None

Efficiency Calibration Used Done On : 7/2/03
Efficiency Geometry ID : 03S0251-002.001

Analyzed By: Sheri Chambers Date: 7/2/03

Reviewed By: Sean Stanfield Date: 7/2/03

*Building 752
752-S-001
Location 3
method: sample*

Sample and QC Sample Results Summary 7/2/03 8:54:42 AM Page 2

***** Sample and QC Sample Results Summary *****

Site Sample ID : 03S0251-002.001

Analytical Batch ID : 0307014453

Sample Type (Result Identifier): D19

Lab Sample Number : CMLS-3095

Geometry ID : 03S0251-002.001

Filename: S:\GENIE2K\CAMFILES\LI009(D)\ORIG\D1900081.CNF

Detector Name: BEGE

MDA = Curie method as specified in Genie-2000 Customization Tools Manual
Appendix B; Basic Algorithms.

Analyte	Activity (pCi/GRAM)	2-Sigma Uncertainty (pCi/GRAM)	MDA (pCi/GRAM)
K-40n	0.00E+000	0.00E+000	8.97E+000
CS-137n	0.00E+000	0.00E+000	5.95E-001
TL-208n	0.00E+000	0.00E+000	5.95E-001
PO-210in	0.00E+000	0.00E+000	5.79E+004
BI-212n	0.00E+000	0.00E+000	8.03E+000
PB-212n	0.00E+000	0.00E+000	4.95E-001
BI-214n	0.00E+000	0.00E+000	1.11E+000
PB-214n	0.00E+000	0.00E+000	7.94E-001
RA-226n	0.00E+000	0.00E+000	6.20E+000
AC-228n	0.00E+000	0.00E+000	2.35E+000
TH-230n	0.00E+000	0.00E+000	5.43E+001
Th-231n	0.00E+000	0.00E+000	2.51E+000
PA-234Mn	0.00E+000	0.00E+000	7.53E+001
PA-234n	0.00E+000	0.00E+000	5.68E-001
U-235	0.00E+000	0.00E+000	3.80E-001
U238/234	0.00E+000	0.00E+000	3.05E+000
AM-241	0.00E+000	0.00E+000	8.62E-001

i - If Po-210 is detected in the spectrum, this peak may be the result of the
interaction of Pb-206(n,n') which also produces a prompt gamma at 803 keV.

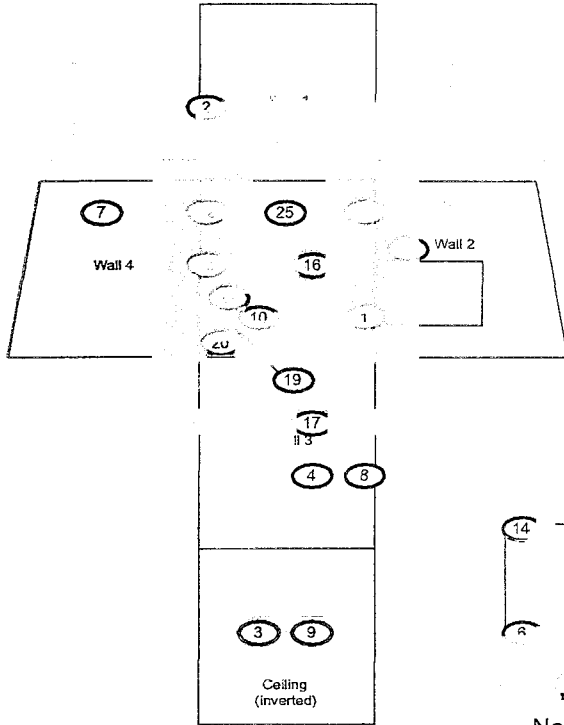
n - Non-contractual Nuclide

PRE-DEMOLITION SURVEY FOR B952

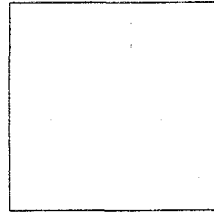
Survey Area: 5 Survey Unit: 952-5-001 Classification: 3
 Building: 952
 Survey Unit Description: Building 952 Interior & Exterior
 Total Area: 135 sq. m. Total Floor Area: 11 sq. m.

PAGE 1 OF 1

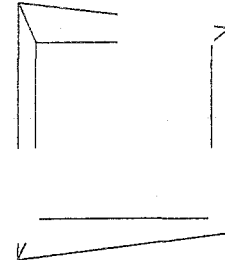
B952 Interior



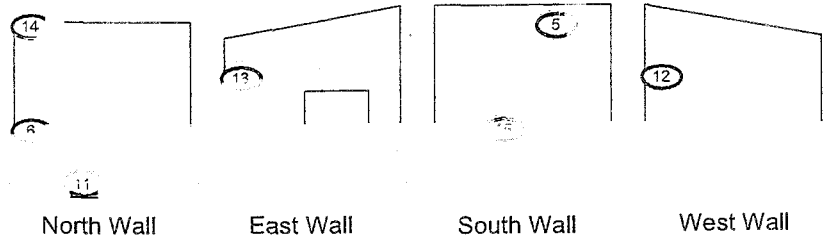
B952 Roof



B952 Eaves



B952 Exterior



Scan Area

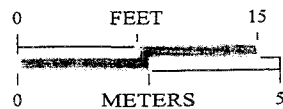
SURVEY MAP LEGEND

- Smear & TSA Location
- Smear, TSA & Sample Location
- Open/Inaccessible Area
- Area in Another Survey Unit

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Scan Survey Information
 Survey Instrument ID #(s) & RCT ID #(s):
 1, 2, 3, 4



1 inch = 12 feet 1 grid sq. = 1 sq. m.

U.S. Department of Energy
 Rocky Flats Environmental Technology Site

Prepared by: GIS Dept. 303-966-7707

Prepared for:

CH2M HILL
 Communications Group



MAP ID: 03-0221/952-INT-Sc

July 10, 2003

SURVEY UNIT T974A-5-002
RADIOLOGICAL DATA SUMMARY - PDS

Survey Unit Description: T974A (Interior & Exterior)

T974A-5-002
PDS Data Summary

Total Surface Activity Measurements			Removable Activity Measurements		
	25	25		25	
	Number Required	Number Obtained		Number Required	Number Obtained
MIN	-15.4	dpm/100 cm ²	MIN	-0.9	dpm/100 cm ²
MAX	69.3	dpm/100 cm ²	MAX	2.7	dpm/100 cm ²
MEAN	8.2	dpm/100 cm ²	MEAN	0.3	dpm/100 cm ²
STD DEV	18.4	dpm/100 cm ²	STD DEV	1.1	dpm/100 cm ²
TRANSURANIC DCGL _w	100	dpm/100 cm ²	TRANSURANIC DCGL _w	20	dpm/100 cm ²

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SURVEY UNIT T974A-5-002

TSA - DATA SUMMARY

Manufacturer:	NE Tech	NE Tech	NE Tech	NE Tech
Model:	DP-6	DP-6	DP-6	DP-6
Instrument ID#:	1	2	7	8
Serial #:	1681	1366	1402	1402
Cal Due Date:	10/18/03	11/27/03	9/12/03	9/12/03
Analysis Date:	6/24/03	6/24/03	7/28/03	7/30/03
Alpha Eff. (c/d):	0.218	0.210	0.216	0.216
Alpha Bkgd (cpm)	1.3	1.3	7.0	3.0
Sample Time (min)	1.5	1.5	1.5	1.5
LAB Time (min)	1.5	1.5	1.5	1.5
MDC (dpm/100cm ²)	48.0	48.0	48.0	48.0

Sample Location Number	Instrument ID#:	Sample Gross Counts (cpm)	Sample Gross Activity (dpm/100cm ²)	LAB Gross Counts (cpm)	LAB Gross Activity (dpm/100cm ²)	Sample Net Activity (dpm/100cm ²) ¹
1	1	4.0	18.3	5.3	24.3	-0.3
2	1	6.7	30.7	2.7	12.4	12.1
3	8	19.0	88.0	8.0	37.0	69.3
4	2	3.3	15.7	6.7	31.9	-2.9
5	1	8.7	39.9	1.5	6.9	21.3
6	1	0.7	3.2	4.7	21.6	-15.4
7	2	6.0	28.6	6.7	31.9	9.9
8	2	2.0	9.5	2.7	12.9	-9.1
9	2	4.0	19.0	6.0	28.6	0.4
10	2	7.4	35.2	8.0	38.1	16.6
11	2	14.7	70.0	2.0	9.5	51.4
12	1	8.0	36.7	3.3	15.1	18.1
13	2	5.3	25.2	3.3	15.7	6.6
14	1	6.7	30.7	6.0	27.5	12.1
15	1	4.7	21.6	2.7	12.4	2.9
16	2	3.3	15.7	4.0	19.0	-2.9
17	2	2.7	12.9	2.7	12.9	-5.8
18	2	4.0	19.0	0.7	3.3	0.4
19	1	4.0	18.3	2.7	12.4	-0.3
20	1	5.3	24.3	3.3	15.1	5.7
21	2	4.0	19.0	2.0	9.5	0.4
22	1	6.0	27.5	2.7	12.4	8.9
23	1	7.3	33.5	4.7	21.6	14.8
24	1	1.3	6.0	0.7	3.2	-12.7
25	1	4.7	21.6	6.7	30.7	2.9

1 - Average LAB used to subtract from Gross Sample Activity

18.6	Sample LAB Average
MIN	-15.4
MAX	69.3
MEAN	8.2
SD	18.4
Transuranic DCGL _w	100

QC Measurements

2 QC	2	5.3	25.2	3.3	15.7	9.8
11 QC	1	12.7	58.3	3.3	15.1	42.8

1 - Average QC LAB used to subtract from Gross Sample Activity

2 - The initial Sample Net Activity for location 3 was 490.6 dpm/100cm². This location was sealed and allowed to decay. Re-survey results were less than the transuranic DCGL_w and are reported.

No further investigation is required.

15.4	QC LAB Average
MIN	9.8
MAX	42.8
MEAN	26.3
Transuranic DCGL _w	100

41

SURVEY UNIT T974A-5-002

RSC - DATA SUMMARY

Manufacturer:	Eberline	Eberline	Eberline	Eberline	Eberline
Model:	SAC-4	SAC-4	SAC-4	SAC-4	SAC-4
Instrument ID#:	3	4	5	6	9
Serial #:	959	952	971	924	770
Cal Due Date:	7/9/03	7/9/03	8/6/03	10/23/03	10/17/03
Analysis Date:	6/26/03	6/26/03	6/26/03	6/26/03	8/11/03
Alpha Eff. (c/d):	0.33	0.33	0.33	0.33	0.33
Alpha Bkgd (cpm)	0.1	0.1	0.3	0.1	0.3
Sample Time (min)	2	2	2	2	2
Bkgd Time (min)	10	10	10	10	10
MDC (dpm/100cm²)	9.0	9.0	9.0	9.0	9.0

Sample Location Number	Instrument ID#	Gross Counts (cpm)	Net Activity (dpm/100 cm²)
1	3	0	-0.3
2	4	0	-0.3
3	9	0	-0.9
4	5	1	0.6
5	6	0	-0.3
6	3	2	2.7
7	4	0	-0.3
8	5	0	-0.9
9	6	1	1.2
10	3	0	-0.3
11	4	0	-0.3
12	5	0	-0.9
13	6	0	-0.3
14	3	1	1.2
15	4	0	-0.3
16	5	2	2.1
17	6	0	-0.3
18	3	1	1.2
19	4	1	1.2
20	5	1	0.6
21	6	0	-0.3
22	3	0	-0.3
23	4	2	2.7
24	5	0	-0.9
25	6	0	-0.3
		MIN	-0.9
		MAX	2.7
		MEAN	0.3
		SD	1.1
		Transuranic DCGL_w	20

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PRE-DEMOLITION SURVEY FOR BT794A

Survey Area: 5

Survey Unit: T974A-5-002

Classification: 3

Building: T974A

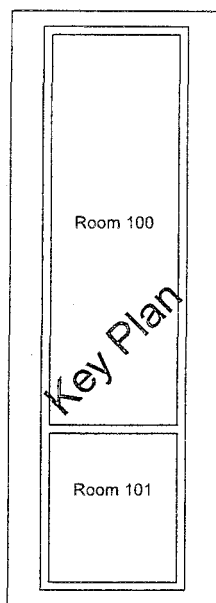
Survey Unit Description: T974A Interior & Exterior

Total Area: 204 sq. m.

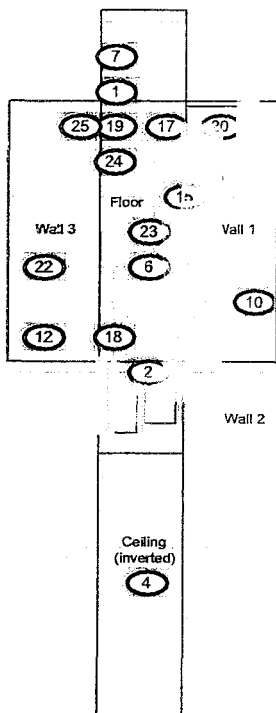
Total Floor Area: 25 sq. m.

PAGE 1 OF 1

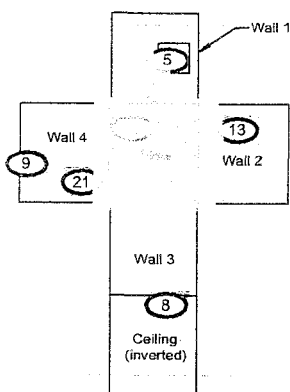
T974A Interior



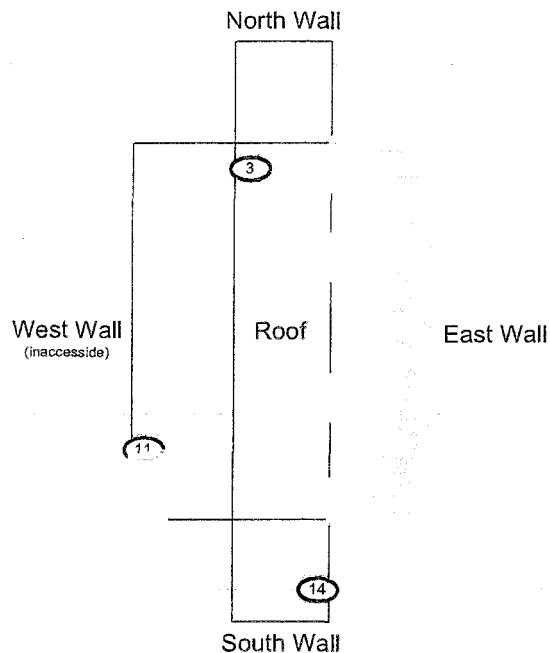
Room 100



Room 101



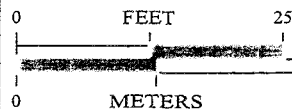
T974A Exterior



SURVEY MAP LEGEND

- Smear & TSA Location
- ◆ Smear, TSA & Sample Location
- Open/Inaccessible Area
- Area in Another Survey Unit

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Scan Survey Information

Survey Instrument #s) & RCT ID #s):
1, 2, 7

1 inch = 18 feet 1 grid sq. = 1 sq. m.

U.S. Department of Energy
Rocky Flats Environmental Technology Site

Prepared by: GIS Dept. 303-966-7707

Prepared for:

CH2MHILL
Communications Group



MAP ID: 03-0221/T974A-INT-SC

Aug. 19, 2003

43

SURVEY UNIT 988-5-003
RADIOLOGICAL DATA SUMMARY - PDS

Survey Unit Description: B988 (Interior & Exterior)

Total Surface Activity Measurements

	25	25
	Number Required	Number Obtained
MIN	-9.7	dpm/100 cm ²
MAX	45.4	dpm/100 cm ²
MEAN	8.1	dpm/100 cm ²
STD DEV	14.7	dpm/100 cm ²
TRANSURANIC DCGL _w	100	dpm/100 cm ²

Removable Activity Measurements

	25	25
	Number Required	Number Obtained
MIN	-0.9	dpm/100 cm ²
MAX	3.6	dpm/100 cm ²
MEAN	0.8	dpm/100 cm ²
STD DEV	1.4	dpm/100 cm ²
TRANSURANIC DCGL _w	20	dpm/100 cm ²

45

**SURVEY UNIT 988-5-003
TSA - DATA SUMMARY**

Manufacturer:	NE Tech	NE Tech
Model:	DP-6	DP-6
Instrument ID#:	1	2
Serial #:	1417	1681
Cal Due Date:	7/28/03	10/18/03
Analysis Date:	6/17/03	6/17/03
Alpha Eff. (c/d):	0.218	0.218
Alpha Bkgd (cpm)	4.0	1.3
Sample Time (min)	1.5	1.5
LAB Time (min)	1.5	1.5
MDC (dpm/100cm²)	48.0	48.0

Sample Location Number	Instrument ID#:	Sample Gross Counts (cpm)	Sample Gross Activity (dpm/100cm ²)	LAB Gross Counts (cpm)	LAB Gross Activity (dpm/100cm ²)	Sample Net Activity (dpm/100cm ²) ¹
1	1	8.0	36.7	4.7	21.6	23.8
2	1	2.0	9.2	2.0	9.2	-3.7
3	1	2.7	12.4	2.0	9.2	-0.5
4	2	3.3	15.1	4.7	21.6	2.2
5	2	12.7	58.3	2.0	9.2	45.4
6	2	2.0	9.2	1.3	6.0	-3.7
7	2	8.7	39.9	3.3	15.1	27.0
8	2	10.0	45.9	3.3	15.1	33.0
9	1	2.7	12.4	4.7	21.6	-0.5
10	1	4.7	21.6	2.7	12.4	8.7
11	2	3.3	15.1	2.0	9.2	2.2
12	1	10.0	45.9	1.3	6.0	33.0
13	1	2.7	12.4	2.7	12.4	-0.5
14	1	2.0	9.2	2.7	12.4	-3.7
15	1	2.0	9.2	1.3	6.0	-3.7
16	2	2.0	9.2	0.7	3.2	-3.7
17	1	0.7	3.2	3.3	15.1	-9.7
18	1	1.3	6.0	2.7	12.4	-6.9
19	1	5.3	24.3	2.0	9.2	11.4
20	2	2.7	12.4	3.3	15.1	-0.5
21	2	3.3	15.1	4.0	18.3	2.2
22	2	6.0	27.5	4.3	19.7	14.6
23	2	5.3	24.3	4.7	21.6	11.4
24	2	3.3	15.1	3.3	15.1	2.2
25	2	8.0	36.7	1.3	6.0	23.8

¹ - Average LAB used to subtract from Gross Sample Activity

12.9	Sample LAB Average
MIN	-9.7
MAX	45.4
MEAN	8.1
SD	14.7
Transuranic DCGL _w	100

QC Measurements

5 QC	1	9.3	42.7	3.7	17.0	29.6
12 QC	2	7.3	33.5	2.0	9.2	20.4

¹ - Average QC LAB used to subtract from Gross Sample Activity

13.1	QC LAB Average
MIN	20.4
MAX	29.6
MEAN	25.0
Transuranic DCGL _w	100

416

**SURVEY UNIT 988-5-003
RSC - DATA SUMMARY**

Manufacturer:	Eberline	Eberline	Eberline
Model:	SAC-4	SAC-4	SAC-4
Instrument ID#:	3	4	5
Serial #:	959	952	971
Cal Due Date:	7/9/03	7/9/03	8/6/03
Analysis Date:	6/18/03	6/18/03	6/18/03
Alpha Eff. (c/d):	0.33	0.33	0.33
Alpha Bkgd (cpm)	0.0	0.3	0.2
Sample Time (min)	2	2	2
Bkgd Time (min)	10	10	10
MDC (dpm/100cm²)	9.0	9.0	9.0

Sample Location Number	Instrument ID#	Gross Counts (cpm)	Net Activity (dpm/100 cm ²)
1	3	0	0.0
2	4	0	-0.9
3	3	1	1.5
4	5	0	-0.6
5	3	2	3.0
6	4	1	0.6
7	5	1	0.9
8	3	0	0.0
9	4	2	2.1
10	5	0	-0.6
11	3	1	1.5
12	4	0	-0.9
13	5	1	0.9
14	3	0	0.0
15	4	3	3.6
16	5	0	-0.6
17	3	1	1.5
18	4	0	-0.9
19	5	2	2.4
20	3	0	0.0
21	4	1	0.6
22	5	0	-0.6
23	3	2	3.0
24	4	1	0.6
25	5	2	2.4
		MIN	-0.9
		MAX	3.6
		MEAN	0.8
		SD	1.4
		Transuranic DCGL _w	20

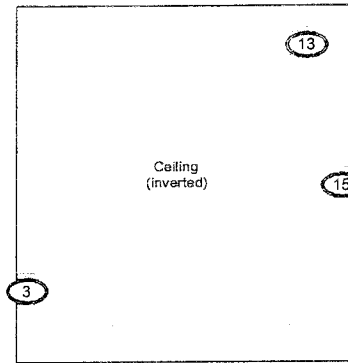
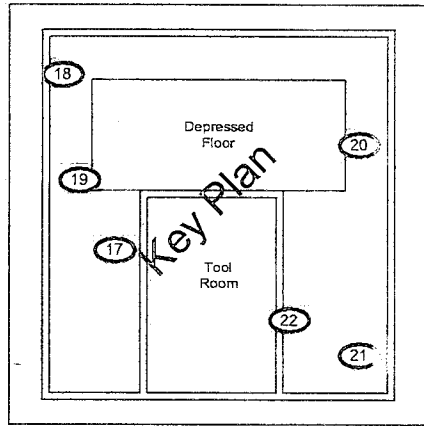
47

PRE-DEMOLITION SURVEY FOR B988

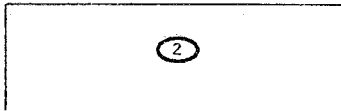
Survey Area: 5 Survey Unit: 988-5-003 Classification: 3
 Building: 988
 Survey Unit Description: Building 988 Interior & Exterior
 Total Area: 582 sq. m. Total Floor Area: 98 sq. m.

PAGE 1 OF 2

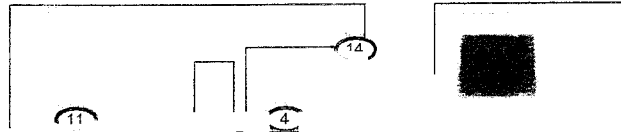
988 Interior



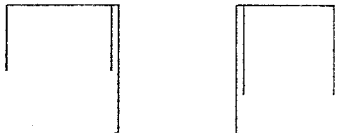
North Wall



East Wall



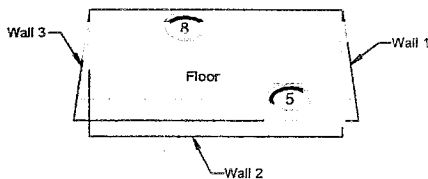
South Wall



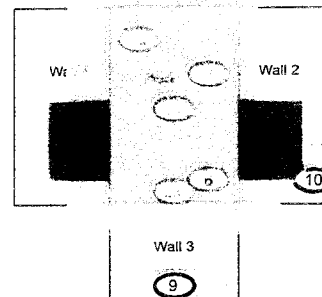
West Wall



Depressed Floor



Tool Room



Scan Area

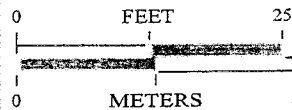
SURVEY MAP LEGEND

- Smear & TSA Location
- Smear, TSA & Sample Location
- Open/Inaccessible Area
- Area in Another Survey Unit

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Scan Survey Information
 Survey Instrument ID #(s) & RCT ID #(s):
 1, 2



1 inch = 18 feet 1 grid sq. = 1 sq. m.

U.S. Department of Energy
 Rocky Flats Environmental Technology Site

Prepared by: GIS Dept. 303-968-7707

Prepared for:

CH2MHILL
 Communications Group



MAP ID: 03-0221/988-INT-SC

July 9, 2003

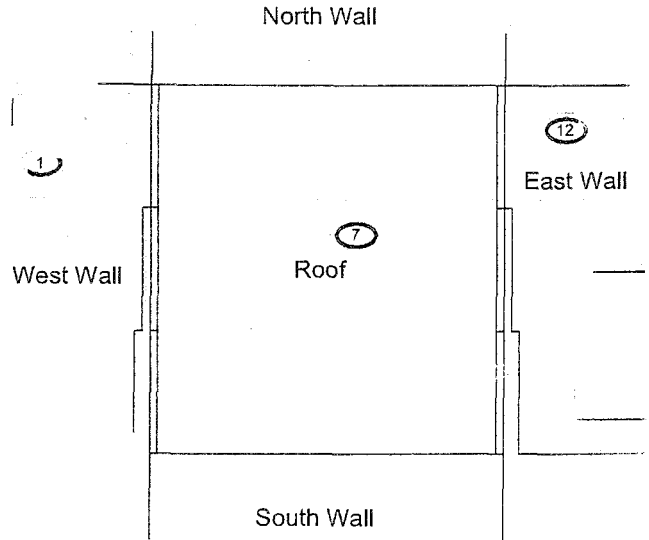
218

PRE-DEMOLITION SURVEY FOR B988

Survey Area: 5 Survey Unit: 988-5-003 Classification: 3
 Building: 988
 Survey Unit Description: Building 988 Interior & Exterior
 Total Area: 582 sq. m. Total Floor Area: 98 sq. m.

PAGE 2 OF 2

988 Exterior



SURVEY MAP LEGEND (U) Smear & TSA Location (D) Smear, TSA & Sample Location ■ Open-Inaccessible Area □ Area in Another Survey Unit		Neither the United States Government nor Kaiser Hill Co., nor DynCorp I&ET, nor any agency thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights.		N ↑		0 FEET 25 0 METERS 8		U.S. Department of Energy Rocky Flats Environmental Technology Site	
Scan Survey Information Survey Instrument ID #(s) & RCT ID #(s): 1, 2		1 inch = 18 feet 1 grid sq. = 1 sq. m.		Prepared by: GIS Dept. 303-966-7707 CH2M HILL Communications Group		Prepared for: KAISER HILL CONSTRUCTION		MAP ID: 03-0221/988-EXT-SC July 9, 2003	

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SURVEY UNIT 988A-5-001
RADIOLOGICAL DATA SUMMARY - PDS

Survey Unit Description: B988A (Interior & Exterior)

988A-5-001
PDS Data Summary

Total Surface Activity Measurements			Removable Activity Measurements		
	30	30		30	
	Number Required	Number Obtained		Number Required	Number Obtained
MIN	-12.4	dpm/100 cm ²	MIN	-0.6	dpm/100 cm ²
MAX	38.6	dpm/100 cm ²	MAX	4.2	dpm/100 cm ²
MEAN	12.3	dpm/100 cm ²	MEAN	0.5	dpm/100 cm ²
STD DEV	15.2	dpm/100 cm ²	STD DEV	1.3	dpm/100 cm ²
TRANSURANIC DCGL _w	100	dpm/100 cm ²	TRANSURANIC DCGL _w	20	dpm/100 cm ²

**SURVEY UNIT 988A-5-001
TSA - DATA SUMMARY**

Manufacturer:	NE Tech	NE Tech	NE Tech	NE Tech
Model:	DP-6	DP-6	DP-6	DP-6
Instrument ID#:	1	2	3	8
Serial #:	1136	1681	1260	1256
Cal Due Date:	7/8/03	10/18/03	7/10/03	12/18/03
Analysis Date:	6/13/03	6/13/03	6/13/03	6/24/03
Alpha Eff. (c/d):	0.217	0.218	0.223	0.230
Alpha Bkgd (cpm)	6.7	2.0	1.3	1.3
Sample Time (min)	1.5	1.5	1.5	1.5
LAB Time (min)	1.5	1.5	1.5	1.5
MDC (dpm/100cm²)	48.0	48.0	48.0	48.0

Sample Location Number	Instrument ID#:	Sample Gross Counts (cpm)	Sample Gross Activity (dpm/100cm ²)	LAB Gross Counts (cpm)	LAB Gross Activity (dpm/100cm ²)	Sample Net Activity (dpm/100cm ²) ¹
1	2	10.0	45.9	2.0	9.2	27.5
2	1	7.3	33.6	7.3	33.6	15.3
3	1	8.0	36.9	5.3	24.4	18.5
4	1	12.0	55.3	6.0	27.6	36.9
5	3	9.3	41.7	4.7	21.1	23.3
6	2	4.7	21.6	1.3	6.0	3.2
7	3	3.3	14.8	4.7	21.1	-3.6
8	1	2.7	12.4	2.7	12.4	-5.9
9	1	7.3	33.6	8.0	36.9	15.3
10	3	12.7	57.0	2.7	12.1	38.6
11	2	4.7	21.6	6.0	27.5	3.2
12	3	10.7	48.0	5.3	23.8	29.6
13	1	10.7	49.3	5.3	24.4	30.9
14	1	7.3	33.6	3.3	15.2	15.3
15	1	2.0	9.2	6.0	27.6	-9.2
16	3	3.3	14.8	3.3	14.8	-3.6
17	3	8.7	39.0	1.3	5.8	20.6
18	3	3.3	14.8	2.7	12.1	-3.6
19	2	4.7	21.6	2.0	9.2	3.2
20	2	1.3	6.0	6.0	27.5	-12.4
21	1	9.3	42.9	3.3	15.2	24.5
22	1	1.3	6.0	4.7	21.7	-12.4
23	3	5.3	23.8	2.7	12.1	5.4
24	3	5.3	23.8	1.3	5.8	5.4
25	1	8.7	40.1	3.3	15.2	21.7
26	3	6.7	30.0	0.7	3.1	11.7
27	2	3.3	15.1	2.7	12.4	-3.2
28	1	6.7	30.9	7.3	33.6	12.5
29	3	11.3	50.7	1.3	5.8	32.3
30	1	10.0	46.1	7.3	33.6	27.7

¹ - Average LAB used to subtract from Gross Sample Activity

18.4	Sample LAB Average
MIN	-12.4
MAX	38.6
MEAN	12.3
SD	15.2
Transuranic DCGL _w	100

QC Measurements

4 QC	2	8.0	36.7	6.0	27.5	18.6
1 QC	8	2.7	11.7	2.0	8.7	-6.4

¹ - Average QC LAB used to subtract from Gross Sample Activity

18.1	QC LAB Average
MIN	-6.4
MAX	18.6
MEAN	6.1
Transuranic DCGL _w	100

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SURVEY UNIT 988A-5-001

RSC - DATA SUMMARY

Manufacturer:	Eberline	Eberline	Eberline	Eberline
Model:	SAC-4	SAC-4	SAC-4	SAC-4
Instrument ID#:	4	5	6	7
Serial #:	959	952	971	924
Cal Due Date:	7/9/03	7/9/03	8/6/03	10/23/03
Analysis Date:	6/10/03	6/10/03	6/10/03	6/10/03
Alpha Eff. (c/d):	0.33	0.33	0.33	0.33
Alpha Bkgd (cpm)	0.1	0.2	0.2	0.1
Sample Time (min)	2	2	2	2
Bkgd Time (min)	10	10	10	10
MDC (dpm/100cm²)	9.0	9.0	9.0	9.0

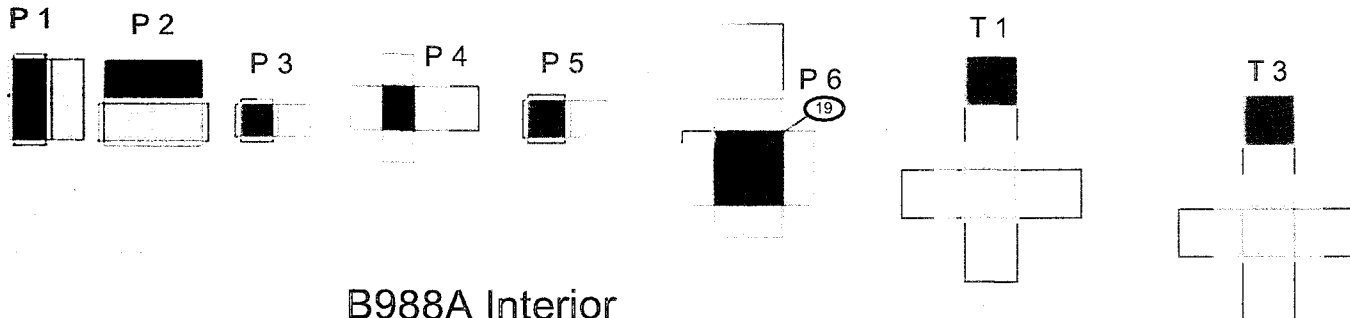
Sample Location Number	Instrument ID#	Gross Counts (cpm)	Net Activity (dpm/100 cm ²)
1	4	0	-0.3
2	5	0	-0.6
3	6	0	-0.6
4	7	0	-0.3
5	4	2	2.7
6	4	1	1.2
7	4	0	-0.3
8	5	0	-0.6
9	5	0	-0.6
10	6	0	-0.6
11	4	1	1.2
12	6	0	-0.6
13	7	3	4.2
14	5	2	2.4
15	6	0	-0.6
16	7	2	2.7
17	4	0	-0.3
18	5	1	0.9
19	6	0	-0.6
20	7	1	1.2
21	4	1	1.2
22	5	1	0.9
23	6	0	-0.6
24	7	1	1.2
25	4	0	-0.3
26	5	1	0.9
27	6	0	-0.6
28	7	0	-0.3
29	4	0	-0.3
30	5	1	0.9
		MIN	-0.6
		MAX	4.2
		MEAN	0.5
		SD	1.3
		Transuranic DCGL _w	20

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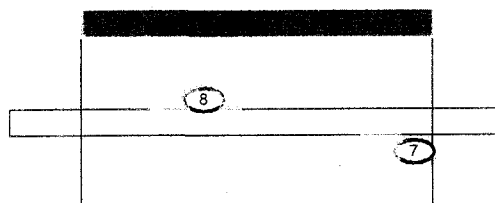
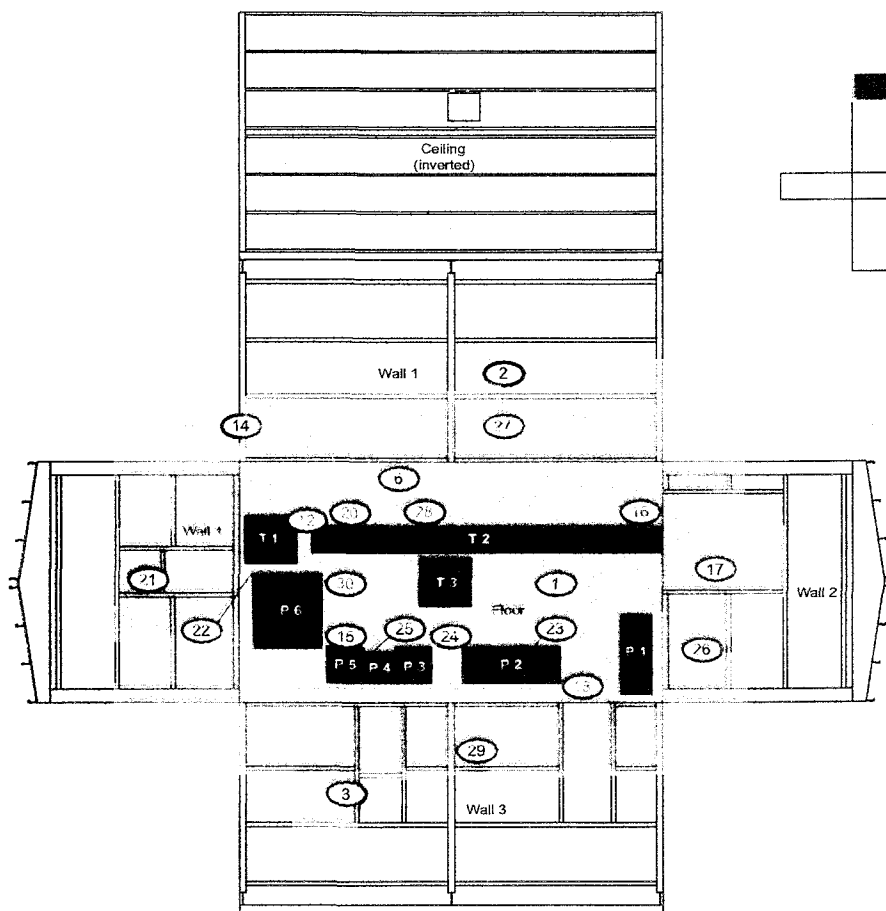
TYPE 1 RLC SURVEY FOR AREA 5, GROUP 16

Survey Area: 5 Survey Unit: 988A-5-001 Classification: 3
 Building: 988A
 Survey Unit Description: Building 988A Interior & Exterior
 Total Area: 391 sq. m. Total Floor Area: 47 sq. m.

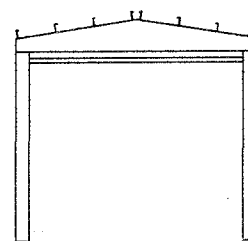
PAGE 1 OF 2



B988A Interior



Mid-Support



SURVEY MAP LEGEND * Smear & TSA Location ◆ Smear, TSA & Sample Location ■ Open/Inaccessible Area □ Area in Another Survey Unit		Neither the United States Government, nor Kaiser Hill Co., nor CH2M Hill, nor any agency thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights.	N ↑	0 FEET 15 0 METERS 5	U.S. Department of Energy Rocky Flats Environmental Technology Site Prepared by: GIS Dept. 303-966-7707 CH2M HILL Communications Group MAP ID: 03-0221/988A-JNT-1-SC
Scan Survey Information Survey Instrument ID #(s) & RCT ID #(s): 1, 2, 3		Scan Area Kaiser Hill July 10, 2003			

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TYPE 1 RLC SURVEY FOR AREA 5, GROUP 16

Survey Area: 5

Survey Unit: 988A-5-001

Classification: 3

Building: 988A

Survey Unit Description: Building 988A Interior & Exterior

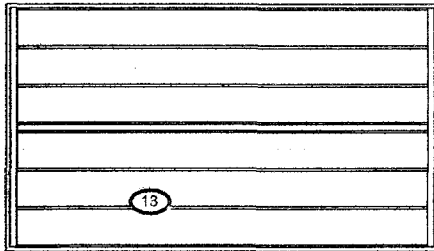
Total Area: 391 sq. m.

Total Floor Area: 47 sq. m.

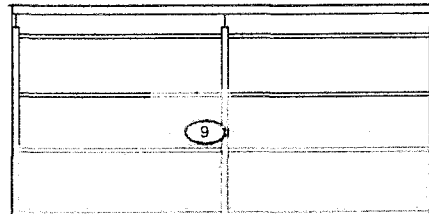
PAGE 2 OF 2

B988A Exterior

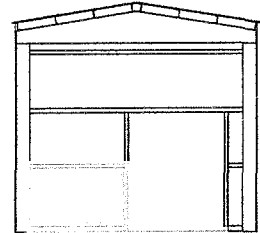
Roof



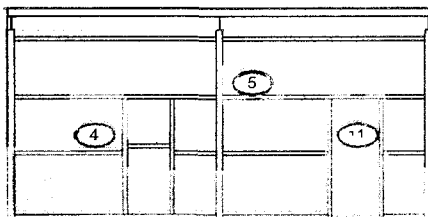
North Wall



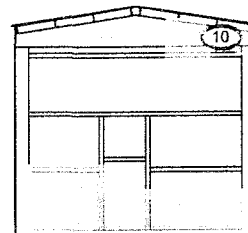
East Wall



South Wall



West Wall



Scan Area

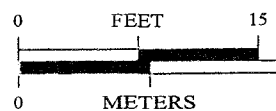
SURVEY MAP LEGEND

- Smear & TSA Location
- Smear, TSA & Sample Location
- Open/Inaccessible Area
- Area in Another Survey Unit

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Scan Survey Information
Survey Instrument ID #(s) & RCT ID #(s):
1, 2, 3



1 inch = 12 feet 1 grid sq. = 1 sq. m.

U.S. Department of Energy
Rocky Flats Environmental Technology Site

Prepared by: GIS Dept. 303-968-7707

CH2M HILL
Communications Group



MAP ID: 03-0226/988A-INT-2-SC

July 10, 2003

SURVEY UNIT 990-5-004
RADIOLOGICAL DATA SUMMARY - PDS

Survey Unit Description: B990 (Interior & Exterior)

990-5-004
PDS Data Summary

Total Surface Activity Measurements			Removable Activity Measurements		
	25	25		25	
	Number Required	Number Obtained		Number Required	Number Obtained
MIN	-12.7	dpm/100 cm ²	MIN	-1.2	dpm/100 cm ²
MAX	73.1	dpm/100 cm ²	MAX	3.6	dpm/100 cm ²
MEAN	19.8	dpm/100 cm ²	MEAN	-0.1	dpm/100 cm ²
STD DEV	22.9	dpm/100 cm ²	STD DEV	1.2	dpm/100 cm ²
TRANSURANIC DCGL _w	100	dpm/100 cm ²	TRANSURANIC DCGL _w	20	dpm/100 cm ²

**SURVEY UNIT 990-5-004
TSA - DATA SUMMARY**

Manufacturer:	NE Tech	NE Tech
Model:	DP-6	DP-6
Instrument ID#:	1	2
Serial #:	1681	1417
Cal Due Date:	10/18/03	7/28/03
Analysis Date:	6/13/03	6/13/03
Alpha Eff. (c/d):	0.218	0.218
Alpha Bkgd (cpm)	1.0	5.0
Sample Time (min)	1.5	1.5
LAB Time (min)	1.5	1.5
MDC (dpm/100cm²)	48.0	48.0

Sample Location Number	Instrument ID#:	Sample Gross Counts (cpm)	Sample Gross Activity (dpm/100cm ²)	LAB Gross Counts (cpm)	LAB Gross Activity (dpm/100cm ²)	Sample Net Activity (dpm/100cm ²) ¹
1	2	6.0	27.5	4.0	18.3	5.7
2	1	9.3	42.7	7.3	33.5	20.8
3	1	13.0	59.6	7.0	32.1	37.8
4	2	4.7	21.6	4.0	18.3	-0.3
5	2	16.0	73.4	6.7	30.7	51.5
6	1	2.0	9.2	4.0	18.3	-12.7
7	2	16.7	76.6	6.7	30.7	54.8
8	2	4.0	18.3	6.7	30.7	-3.5
9	2	10.0	45.9	3.3	15.1	24.0
10	1	4.7	21.6	2.7	12.4	-0.3
11	1	20.7	95.0	7.0	32.1	73.1
12	2	6.0	27.5	4.7	21.6	5.7
13	1	5.3	24.3	3.3	15.1	2.5
14	2	17.3	79.4	2.0	9.2	57.5
15	1	8.0	36.7	4.7	21.6	14.8
16	1	10.0	45.9	5.3	24.3	24.0
17	1	10.0	45.9	5.3	24.3	24.0
18	1	6.7	30.7	3.3	15.1	8.9
19	2	13.3	61.0	5.3	24.3	39.2
20	1	14.7	67.4	4.0	18.3	45.6
21	1	4.0	18.3	8.0	36.7	-3.5
22	2	8.0	36.7	2.2	10.1	14.8
23	1	5.3	24.3	2.3	10.6	2.5
24	2	5.3	24.3	6.0	27.5	2.5
25	2	6.0	27.5	3.3	15.1	5.7

1 - Average LAB used to subtract from Gross Sample Activity

21.9	Sample LAB Average
MIN	-12.7
MAX	73.1
MEAN	19.8
SD	22.9
Transuranic DCGL _w	100

QC Measurements

3 QC	2	14.0	64.2	4.7	21.6	35.1
7 QC	1	27.3	125.2	8.0	36.7	96.1

1 - Average QC LAB used to subtract from Gross Sample Activity

29.1	QC LAB Average
MIN	35.1
MAX	96.1
MEAN	65.6
Transuranic DCGL _w	100

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**SURVEY UNIT 990-5-004
RSC - DATA SUMMARY**

Manufacturer:	Eberline	Eberline	Eberline	Eberline
Model:	SAC-4	SAC-4	SAC-4	SAC-4
Instrument ID#:	4	5	6	7
Serial #:	959	952	971	924
Cal Due Date:	7/9/03	7/9/03	8/6/03	10/23/03
Analysis Date:	6/13/03	6/13/03	6/13/03	6/13/03
Alpha Eff. (c/d):	0.33	0.33	0.33	0.33
Alpha Bkgd (cpm)	0.2	0.4	0.3	0.3
Sample Time (min)	2	2	2	2
Bkgd Time (min)	10	10	10	10
MDC (dpm/100cm²)	9.0	9.0	9.0	9.0

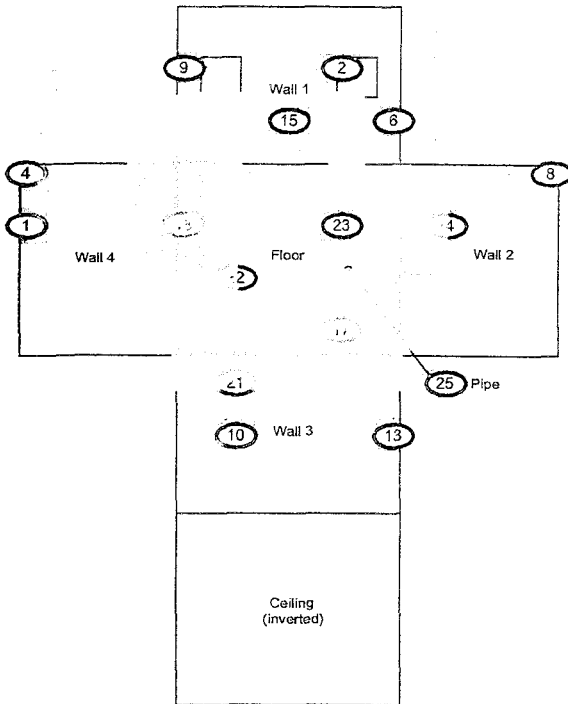
Sample Location Number	Instrument ID#	Gross Counts (cpm)	Net Activity (dpm/100 cm ²)
1	4	0	-0.6
2	5	1	0.3
3	6	0	-0.9
4	7	3	3.6
5	4	1	0.9
6	5	2	1.8
7	6	0	-0.9
8	7	0	-0.9
9	4	0	-0.6
10	5	1	0.3
11	6	0	-0.9
12	7	0	-0.9
13	4	0	-0.6
14	5	0	-1.2
15	6	0	-0.9
16	7	1	0.6
17	4	0	-0.6
18	5	0	-1.2
19	6	0	-0.9
20	7	0	-0.9
21	4	2	2.4
22	5	0	-1.2
23	6	1	0.6
24	7	1	0.6
25	4	0	-0.6
		MIN	-1.2
		MAX	3.6
		MEAN	-0.1
		SD	1.2
		Transuranic DCGL _w	20

PRE-DEMOLITION SURVEY FOR B990

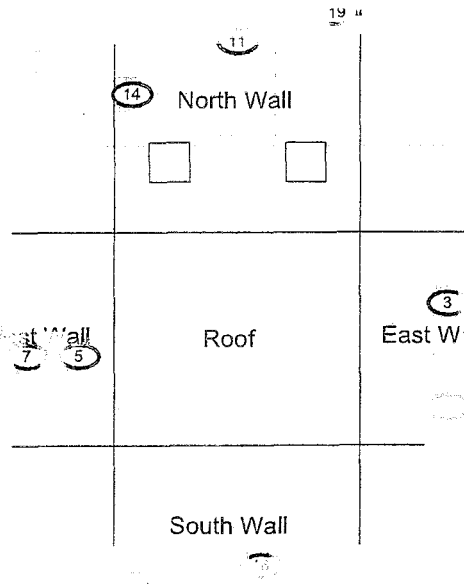
Survey Area: 5 Survey Unit: 990-5-004 Classification: 3
 Building: 990
 Survey Unit Description: Building 990 Interior & Exterior
 Total Area: 159 sq. m. Total Floor Area: 16 sq. m.

PAGE 1 OF 1

B990 Interior



B990 Exterior



SURVEY MAP LEGEND (U) Smear & TSA Location (D) Smear, TSA & Sample Location (X) Open/Inaccessible Area (A) Area in Another Survey Unit		Neither the United States Government nor Kaiser Hill Co., nor DynCorp I&ET, nor any agency thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights.		N ↑		0 FEET 15 0 METERS 5		U.S. Department of Energy Rocky Flats Environmental Technology Site Prepared by: GIS Dept. 303-966-7707 Prepared for:	
Scan Survey Information Survey Instrument ID #(s) & RCT ID #(s): 1, 2, 3		1 inch = 12 feet 1 grid sq. = 1 sq. m.		CH2M HILL Communications Group		MAP ID: 03-0221/990-INT-SC		July 9, 2003	

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SURVEY UNIT 990A-5-005
RADIOLOGICAL DATA SUMMARY - PDS

Survey Unit Description: B990A (Interior & Exterior)

990A-5-005
PDS Data Summary

Total Surface Activity Measurements

	25	25
	Number Required	Number Obtained
MIN	-8.0	dpm/100 cm ²
MAX	77.8	dpm/100 cm ²
MEAN	18.5	dpm/100 cm ²
STD DEV	22.4	dpm/100 cm ²
TRANSURANIC DCGL _w	100	dpm/100 cm ²

Removable Activity Measurements

	25	25
	Number Required	Number Obtained
MIN	-1.2	dpm/100 cm ²
MAX	3.3	dpm/100 cm ²
MEAN	0.0	dpm/100 cm ²
STD DEV	1.1	dpm/100 cm ²
TRANSURANIC DCGL _w	20	dpm/100 cm ²

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**SURVEY UNIT 990A-5-005
TSA - DATA SUMMARY**

Manufacturer:	NE Tech	NE Tech	NE Tech	NE Tech	NE Tech
Model:	DP-6	DP-6	DP-6	DP-6	DP-6
Instrument ID#:	1	2	3	8	9
Serial #:	1417	1681	1589	1260	1136
Cal Due Date:	7/28/03	10/18/03	7/8/03	7/10/03	12/18/03
Analysis Date:	6/16/03	6/16/03	6/16/03	6/18/03	6/26/03
Alpha Eff. (c/d):	0.218	0.218	0.224	0.223	0.218
Alpha Bkgd (cpm)	0.7	0.7	2.0	2.0	5.3
Sample Time (min)	1.5	1.5	1.5	1.5	1.5
LAB Time (min)	1.5	1.5	1.5	1.5	1.5
MDC (dpm/100cm²)	48.0	48.0	48.0	48.0	48.0

Sample Location Number	Instrument ID#:	Sample Gross Counts (cpm)	Sample Gross Activity (dpm/100cm ²)	LAB Gross Counts (cpm)	LAB Gross Activity (dpm/100cm ²)	Sample Net Activity (dpm/100cm ²) ^{1,2}
1	1	4.0	18.3	2.7	12.4	4.4
2	1	16.7	76.6	4.7	21.6	62.7
3	2	12.7	58.3	2.0	9.2	44.3
4	3	10.7	47.8	3.3	14.7	33.8
5	1	11.3	51.8	4.7	21.6	37.9
6	1	20.0	91.7	2.7	12.4	77.8
7	1	1.3	6.0	0.7	3.2	-8.0
8	2	4.4	20.2	3.3	15.1	6.3
9	2	8.7	39.9	3.3	15.1	26.0
10	1	8.7	39.9	3.3	15.1	26.0
11	2	11.3	51.8	3.3	15.1	37.9
12	3	10.7	47.8	4.7	21.0	33.8
13	1	27.3	125.2	2.7	12.4	0.0
14	1	7.3	33.5	6.0	27.5	19.6
15	1	2.0	9.2	2.0	9.2	-4.7
16	2	6.7	30.7	4.0	18.3	16.8
17	2	10.7	49.1	2.7	12.4	35.2
18	1	2.7	12.4	2.7	12.4	-1.5
19	1	4.0	18.3	0.0	0.0	4.4
20	1	3.3	15.1	4.0	18.3	1.2
21	2	3.3	15.1	2.7	12.4	1.2
22	2	2.7	12.4	2.7	12.4	-1.5
23	2	5.3	24.3	3.3	15.1	10.4
24	1	3.3	15.1	1.3	6.0	1.2
25	1	2.7	12.4	3.3	15.1	-1.5

1 - Average LAB used to subtract from Gross Sample Activity

13.9	Sample LAB Average
MIN	-8.0
MAX	77.8
MEAN	18.5
SD	22.4
Transuranic DCGL _w	100

QC Measurements

11 QC	1	12.0	55.0	1.3	6.0	36.7
5 IQC	2	14.0	64.2	6.7	30.7	45.9

1 - Average QC LAB used to subtract from Gross Sample Activity

2 - The initial Sample Net Activity for location 13 was 111.3 dpm/100cm². A concrete surface sample was collected from location 13 and analyzed using the Canberra ISOCS system. No transuranic isotopes were detected. The sample activity was determined to be from uranium and other naturally occurring isotopes. The Sample Net Activity for this location is below the uranium DCGL_w limit (5000 dpm/100cm²). All survey results are less than the applicable DCGLs, therefore, no further investigation is required. On this basis, the transuranic value for location 13 is reported as zero (0) net activity in the TSA Data Summary.

18.3	QC LAB Average
MIN	36.7
MAX	45.9
MEAN	41.3
Transuranic DCGL _w	100

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**SURVEY UNIT 990A-5-005
RSC - DATA SUMMARY**

Manufacturer:	Eberline	Eberline	Eberline	Eberline
Model:	SAC-4	SAC-4	SAC-4	SAC-4
Instrument ID#:	4	5	6	7
Serial #:	959	952	971	924
Cal Due Date:	7/9/03	7/9/03	8/6/03	10/23/03
Analysis Date:	6/16/03	6/16/03	6/16/03	6/16/03
Alpha Eff. (c/d):	0.33	0.33	0.33	0.33
Alpha Bkgd (cpm)	0.3	0.4	0.1	0.2
Sample Time (min)	2	2	2	2
Bkgd Time (min)	10	10	10	10
MDC (dpm/100cm²)	9.0	9.0	9.0	9.0

Sample Location Number	Instrument ID#	Gross Counts (cpm)	Net Activity (dpm/100 cm ²)
1	4	0	-0.9
2	5	3	3.3
3	6	0	-0.3
4	7	0	-0.6
5	4	0	-0.9
6	5	2	1.8
7	6	0	-0.3
8	7	0	-0.6
9	4	1	0.6
10	5	1	0.3
11	6	0	-0.3
12	7	1	0.9
13	4	0	-0.9
14	5	0	-1.2
15	6	1	1.2
16	7	1	0.9
17	4	0	-0.9
18	5	0	-1.2
19	6	0	-0.3
20	7	0	-0.6
21	4	0	-0.9
22	5	1	0.3
23	6	1	1.2
24	7	1	0.9
25	4	0	-0.9
		MIN	-1.2
		MAX	3.3
		MEAN	0.0
		SD	1.1
		Transuranic DCGL _w	20

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Analysis Results Header

7/2/2003

8:46:47 AM

Page 1

***** GAMMA SPECTRUM ANALYSIS *****
** Canberra Mobile Laboratory Services **

Report Generated On : 7/2/2003 8:46:47 AM

RIN Number : 03S0251
Analytical Batch ID : 0306304453
Line Item Code : RC10C019

Filename: S:\GENIE2K\CAMFILES\LI009(D)\ORIG\D1900080.CNF

Sample Number : 03S0251-001.001
Lab Sample Number : CMLS-3094
Sample Receipt Date : 6/27/2003
Sample Volume Received : 2.23E+001 GRAM

Result Identifier : N/A

Peak Locate Threshold : 2.50
Peak Locate Range (in channels) : 100 - 8192
Peak Area Range (in channels) : 100 - 8192
Identification Energy Tolerance : 1.000 keV

Sample (Final Aliquot Size) : 2.230E+001 GRAM
Sample Quantity Error : 0.000E+000
Systematic Error Applied : 0.000E+000

Sample Taken On : 6/26/2003 1:55:00 PM
Acquisition Started : 6/30/2003 4:42:49 PM

Count Time : 7200.0 seconds
Real Time : 7200.6 seconds
Dead Time : 0.01 %

Energy Calibration Used Done On : 6/24/03
Energy = -0.274 + 0.250*ch + -6.39E-008*ch^2 + 5.91E-012*ch^3

Corrections Applied:
None

Efficiency Calibration Used Done On : 7/2/03
Efficiency Geometry ID : 03S0251-001.001

Analyzed By: Sheri Chambers Date: 7/2/03
Reviewed By: Sean Stanfield Date: 7/2/03

3rd day 8:00 AM
7/24-5-2003
Completed
Sample Surface Sample

Sample and QC Sample Results Summary 7/2/03 8:46:47 AM Page 2

***** Sample and QC Sample Results Summary *****

Site Sample ID : 03S0251-001.001

Analytical Batch ID : 0306304453

Sample Type (Result Identifier): D19

Lab Sample Number : CMLS-3094

Geometry ID : 03S0251-001.001

Filename: S:\GENIE2K\CAMFILES\LI009(D)\ORIG\D1900080.CNF

Detector Name: BEGE

MDA = Curie method as specified in Genie-2000 Customization Tools Manual
Appendix B; Basic Algorithms.

Analyte	Activity (pCi/GRAM)	2-Sigma Uncertainty (pCi/GRAM)	MDA (pCi/GRAM)
K-40n	7.65E+000	2.96E+000	3.84E+000
CS-137n	0.00E+000	0.00E+000	4.48E-001
TL-208n	0.00E+000	0.00E+000	4.09E-001
PO-210in	0.00E+000	0.00E+000	3.48E+004
BI-212n	0.00E+000	0.00E+000	5.93E+000
PB-212n	1.06E+000	1.77E-001	2.32E-001
BI-214n	1.01E+000	3.87E-001	5.39E-001
PB-214n	9.00E-001	2.64E-001	4.69E-001
RA-226n	2.25E+000	7.60E-001	2.19E+000
AC-228n	0.00E+000	0.00E+000	1.64E+000
TH-230n	0.00E+000	0.00E+000	1.65E+001
Th-231n	0.00E+000	0.00E+000	1.18E+000
PA-234Mn	0.00E+000	0.00E+000	4.06E+001
PA-234n	0.00E+000	0.00E+000	3.05E-001
U-235	1.39E-001	4.66E-002	1.36E-001
U238/234	0.00E+000	0.00E+000	1.69E+000
AM-241	0.00E+000	0.00E+000	1.88E-001

i - If Po-210 is detected in the spectrum, this peak may be the result of the interaction of Pb-206(n,n') which also produces a prompt gamma at 803 keV.

n - Non-contractual Nuclide

PRE-DEMOLITION SURVEY FOR B990A

Survey Area: 5

Survey Unit: 990A-5-005

Classification: 3

Building: 990A

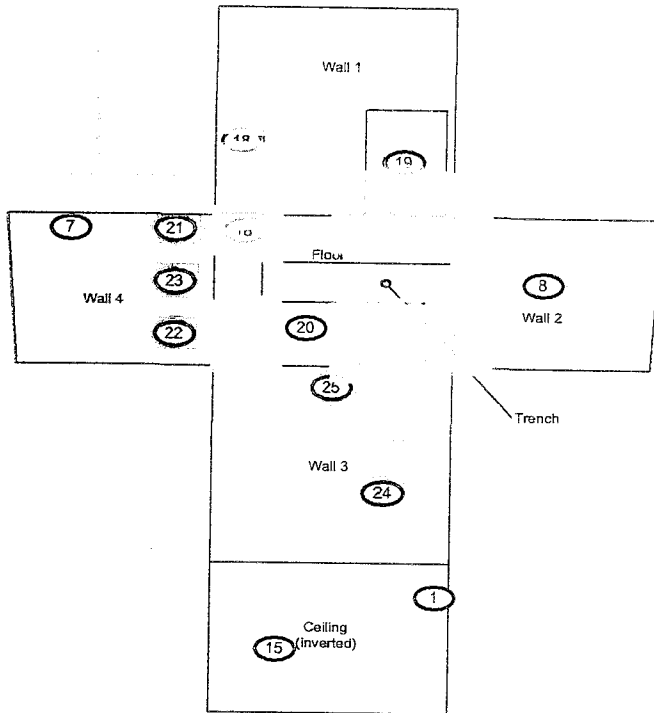
Survey Unit Description: Building 990A Interior & Exterior

Total Area: 162 sq. m.

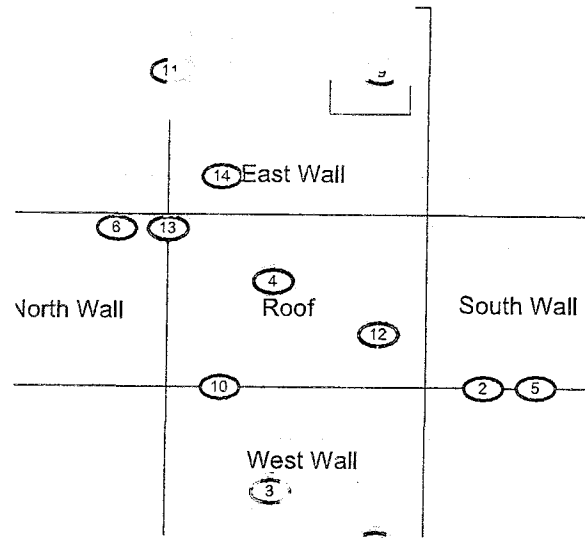
Total Floor Area: 13 sq. m.

PAGE 1 OF 1

B990A Interior



B990A Exterior



SURVEY MAP LEGEND (N) Smear & TSA Location (S) Smear, TSA & Sample Location (O) Open/Inaccessible Area (A) Area in Another Survey Unit		Neither the United States Government nor Kaiser Hill Co., nor DynCorp I&ET, nor any agency thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights.		0 15 FEET 0 5 METERS		U.S. Department of Energy Rocky Flats Environmental Technology Site Prepared by: GIS Dept. 303-966-7707 Prepared for:	
Scan Survey Information Survey Instrument ID #(s) & RCT ID #(s): 1, 2, 3		1 inch = 12 feet 1 grid sq. = 1 sq. m.		CH2M HILL Communications Group MAP ID: 03-0221/990A-INT-SC		July 10, 2003	

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SURVEY UNIT 995-5-006
RADIOLOGICAL DATA SUMMARY - PDS

Survey Unit Description: B995 (Interior & Exterior)

995-5-006
PDS Data Summary

Total Surface Activity Measurements

	45	45
	Number Required	Number Obtained
MIN	-18.9	dpm/100 cm ²
MAX	60.8	dpm/100 cm ²
MEAN	7.5	dpm/100 cm ²
STD DEV	17.0	dpm/100 cm ²
TRANSURANIC DCGL _w	100	dpm/100 cm ²

Removable Activity Measurements

	45	45
	Number Required	Number Obtained
MIN	-0.9	dpm/100 cm ²
MAX	5.2	dpm/100 cm ²
MEAN	0.2	dpm/100 cm ²
STD DEV	1.1	dpm/100 cm ²
TRANSURANIC DCGL _w	20	dpm/100 cm ²

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**SURVEY UNIT 995-5-006
TSA - DATA SUMMARY**

Manufacturer:	NE Tech	NE Tech	NE Tech	NE Tech
Model:	DP-6	DP-6	DP-6	DP-6
Instrument ID#:	1	2	3	4
Serial #:	1136	1260	1136	1417
Cal Due Date:	7/8/03	7/10/03	7/8/03	7/28/03
Analysis Date:	6/10/03	6/10/03	6/11/03	6/11/03
Alpha Eff. (c/d):	0.217	0.223	0.217	0.218
Alpha Bkgd (cpm)	6.7	1.3	2.0	3.3
Sample Time (min)	1.5	1.5	1.5	1.5
LAB Time (min)	1.5	1.5	1.5	1.5
MDC (dpm/100cm²)	48.0	48.0	48.0	48.0

Sample Location Number	Instrument ID#:	Sample Gross Counts (cpm)	Sample Gross Activity (dpm/100cm ²)	LAB Gross Counts (cpm)	LAB Gross Activity (dpm/100cm ²)	Sample Net Activity (dpm/100cm ²) ¹
1	1	7.3	33.6	8.0	36.9	11.5
2	4	12.7	58.3	4.0	18.3	36.1
3	2	10.7	48.0	4.0	17.9	25.9
4	1	14.0	64.5	6.0	27.6	42.4
5	2	6.7	30.0	8.0	35.9	7.9
6	1	6.0	27.6	8.0	36.9	5.5
7	3	8.0	36.9	6.7	30.9	14.7
8	1	3.3	15.2	6.7	30.9	-6.9
9	2	9.3	41.7	6.7	30.0	19.6
10	3	12.7	58.5	6.0	27.6	36.4
11	1	5.3	24.4	7.3	33.6	2.3
12	1	6.7	30.9	7.3	33.6	8.7
13	4	6.7	30.7	2.7	12.4	8.6
14	3	18.0	82.9	3.4	15.7	60.8
15	4	6.7	30.7	4.0	18.3	8.6
16	1	3.3	15.2	2.7	12.4	-6.9
17	3	2.7	12.4	3.3	15.2	-9.7
18	4	0.7	3.2	1.3	6.0	-18.9
19	3	3.3	15.2	5.3	24.4	-6.9
20	4	3.3	15.1	2.0	9.2	-7.0
21	4	7.3	33.5	6.0	27.5	11.4
22	3	10.0	46.1	3.3	15.2	24.0
23	3	6.0	27.6	4.0	18.4	5.5
24	4	2.0	9.2	2.0	9.2	-13.0
25	3	5.3	24.4	2.7	12.4	2.3
26	4	4.0	18.3	2.0	9.2	-3.8
27	3	8.0	36.9	4.0	18.4	14.7
28	4	5.3	24.3	2.7	12.4	2.2
29	3	2.7	12.4	6.7	30.9	-9.7
30	4	4.7	21.6	3.3	15.1	-0.6
31	3	10.7	49.3	6.7	30.9	27.2
32	4	4.7	21.6	2.7	12.4	-0.6
33	3	8.0	36.9	7.3	33.6	14.7
34	4	1.3	6.0	2.7	12.4	-16.2
35	3	7.3	33.6	6.7	30.9	11.5
36	4	2.7	12.4	0.7	3.2	-9.7

**SURVEY UNIT 995-5-006
TSA - DATA SUMMARY**

Sample Location Number	Instrument ID#:	Sample Gross Counts (cpm)	Sample Gross Activity (dpm/100cm2)	LAB Gross Counts (cpm)	LAB Gross Activity (dpm/100cm2)	Sample Net Activity (dpm/100cm2) ¹
37	3	2.0	9.2	7.3	33.6	-12.9
38	4	4.7	21.6	1.3	6.0	-0.6
39	3	4.0	18.4	8.0	36.9	-3.7
40	4	4.7	21.6	3.3	15.1	-0.6
41	4	2.7	12.4	2.7	12.4	-9.7
42	3	7.3	33.6	6.0	27.6	11.5
43	3	11.3	52.1	7.3	33.6	29.9
44	4	6.0	27.5	6.0	27.5	5.4
45	3	10.7	49.3	8.0	36.9	27.2

1 - Average LAB used to subtract from Gross Sample Activity

22.1	Sample LAB Average
MIN	-18.9
MAX	60.8
MEAN	7.5
SD	17.0
Transuranic DCGL _w	100

QC Measurements

38 QC	3	12.7	58.5	6.0	27.6	28.7
3 QC	3	18.7	86.2	6.7	30.9	56.4
13 QC	3	8.7	40.1	6.7	30.9	10.3

1 - Average QC LAB used to subtract from Gross Sample Activity

29.8	QC LAB Average
MIN	10.3
MAX	56.4
MEAN	31.8
Transuranic DCGL _w	100

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**SURVEY UNIT 995-5-006
RSC - DATA SUMMARY**

Manufacturer:	Eberline	Eberline	Eberline	Eberline
Model:	SAC-4	SAC-4	SAC-4	SAC-4
Instrument ID#:	5	6	7	8
Serial #:	959	952	971	924
Cal Due Date:	7/9/03	7/9/03	8/6/03	10/23/03
Analysis Date:	6/12/03	6/12/03	6/12/03	6/12/03
Alpha Eff. (c/d):	0.33	0.33	0.33	0.33
Alpha Bkgd (cpm)	0.2	0.3	0.0	0.1
Sample Time (min)	2	2	2	2
Bkgd Time (min)	10	10	10	10
MDC (dpm/100cm²)	9.0	9.0	9.0	9.0

Sample Location Number	Instrument ID#	Gross Counts (cpm)	Net Activity (dpm/100 cm²)
1	5	0	-0.6
2	6	2	2.1
3	7	0	0.0
4	8	2	2.7
5	5	1	0.9
6	6	2	2.1
7	7	0	0.0
8	8	0	-0.3
9	5	0	-0.6
10	6	1	0.6
11	7	0	0.0
12	8	0	-0.3
13	5	0	-0.6
14	6	1	0.6
15	7	0	0.0
16	8	1	1.2
17	5	0	-0.6
18	6	1	0.6
19	7	0	0.0
20	8	0	-0.3
21	5	1	0.9
22	6	1	0.6
23	7	0	0.0
24	8	0	-0.3
25	5	1	0.9
26	6	4	5.2
27	7	0	0.0
28	8	0	-0.3
29	5	0	-0.6
30	6	1	0.6
31	7	1	1.5
32	8	0	-0.3
33	5	0	-0.6
34	6	0	-0.9

**SURVEY UNIT 995-5-006
RSC - DATA SUMMARY**

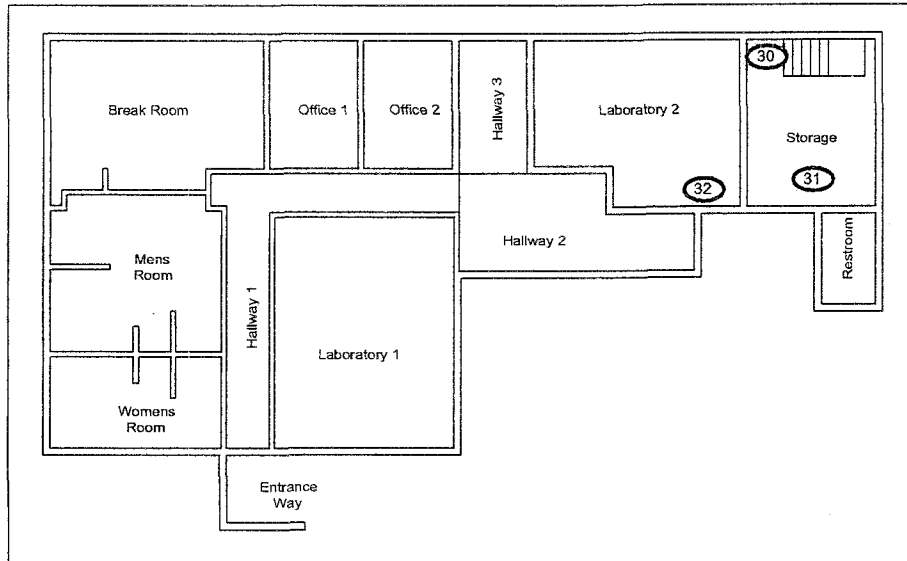
Sample Location Number	Instrument ID#	Gross Counts (cpm)	Net Activity (dpm/100 cm ²)
35	7	0	0.0
36	8	0	-0.3
37	5	0	-0.6
38	6	0	-0.9
39	7	0	0.0
40	8	0	-0.3
41	5	0	-0.6
42	6	0	-0.9
43	7	1	1.5
44	8	0	-0.3
45	5	0	-0.6
		MIN	-0.9
		MAX	5.2
		MEAN	0.2
		SD	1.1
		Transuranic DCGL _w	20

PRE-DEMOLITION SURVEY FOR B995

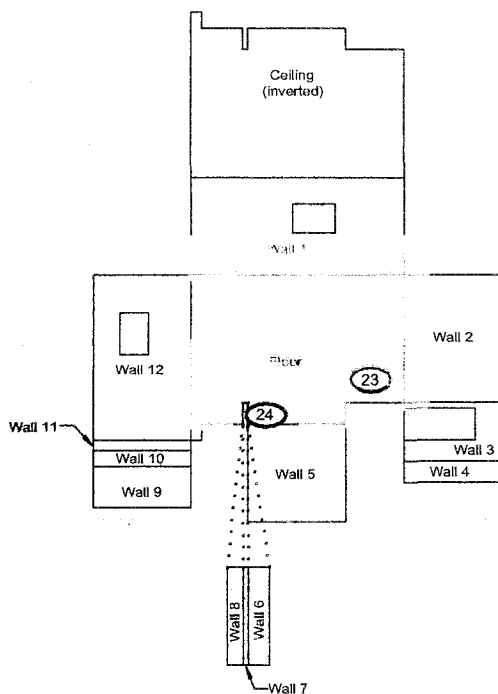
Survey Area: 5 Survey Unit: 995-5-006 Classification: 3
 Building: 995
 Survey Unit Description: Building 995 Interior & Exterior
 Total Area: 1732 sq. m. Total Floor Area: 242 sq. m.

PAGE 1 OF 4

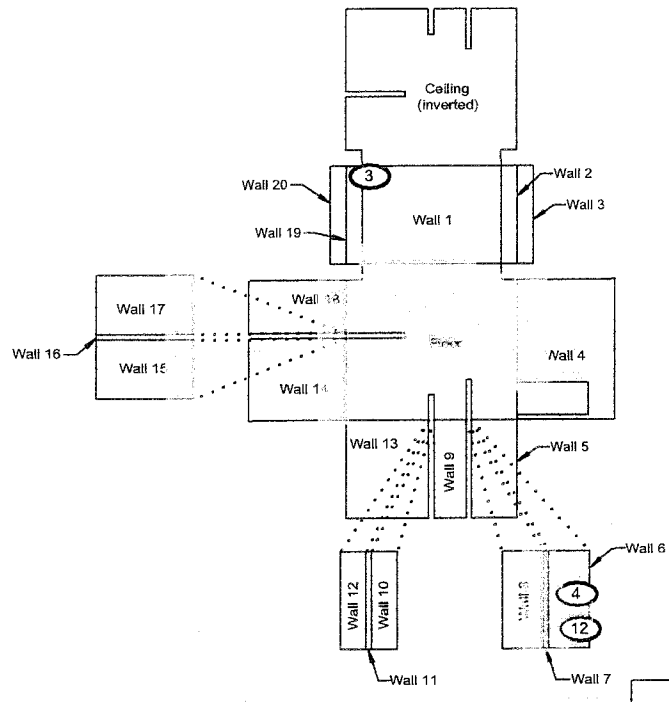
995 Interior



Break Room



Mens Room

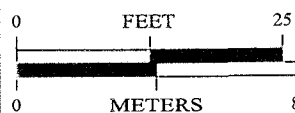


Scan Area

SURVEY MAP LEGEND

- Smear & TSA Location
- Smear, TSA & Sample Location
- Open/Inaccessible Area
- Area in Another Survey Unit

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1 inch = 18 feet 1 grid sq. = 1 sq. m.

Scan Survey Information
 Survey Instrument ID #(s) & RCT ID #(s):
 1, 2, 3, 4

U.S. Department of Energy
 Rocky Flats Environmental Technology Site

Prepared by: GIS Dept. 303-966-7707

Prepared for:

CH2M HILL
 Communications Group



MAP ID: 03-0221/995-INT-SC

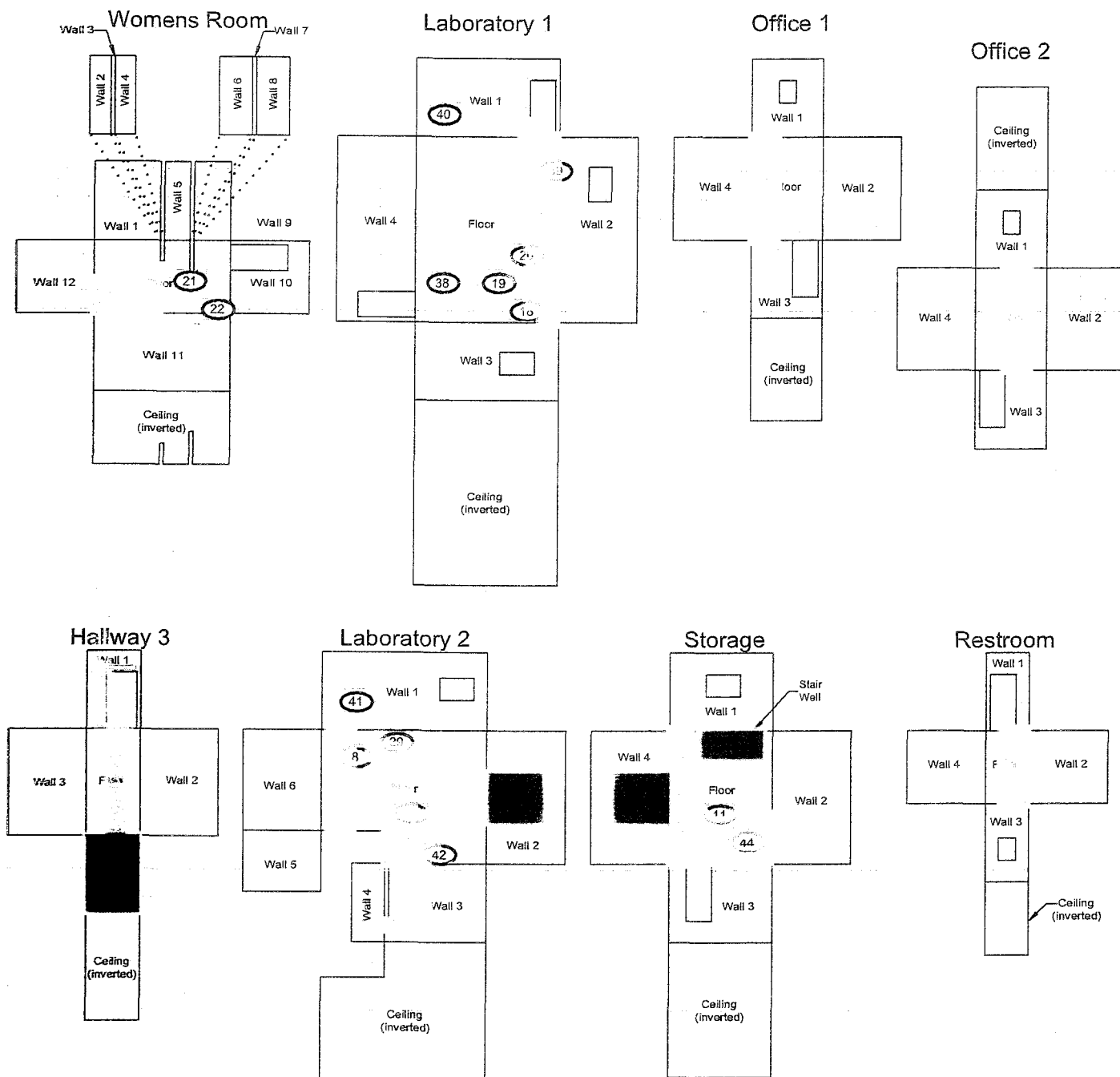
July 9, 2003

74

PRE-DEMOLITION SURVEY FOR B995

Survey Area: 5 Survey Unit: 995-5-006 Classification: 3
 Building: 995
 Survey Unit Description: Building 995 Interior & Exterior
 Total Area: 1732 sq. m. Total Floor Area: 242 sq. m.

PAGE 2 OF 4



SURVEY MAP LEGEND (H) Smear & TSA Location (D) Smear, TSA & Sample Location ■ Open/Inaccessible Area □ Area in Another Survey Unit		Neither the United States Government nor Kaiser Hill Co., nor DynCorp I&ET, nor any agency thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights.		0 25 FEET 0 8 METERS 1 inch = 18 feet 1 grid sq. = 1 sq. m.		U.S. Department of Energy Rocky Flats Environmental Technology Site Prepared by: GIS Dept. 303-966-7707 Prepared for:	
Scan Survey Information Survey Instrument ID #(s) & RCT ID #(s): 1, 2, 3, 4		CH2M HILL Communications Group MAP ID: 03-0221/995-INT-2-SC July 9, 2003		Kaiser Hill		Scan Area	

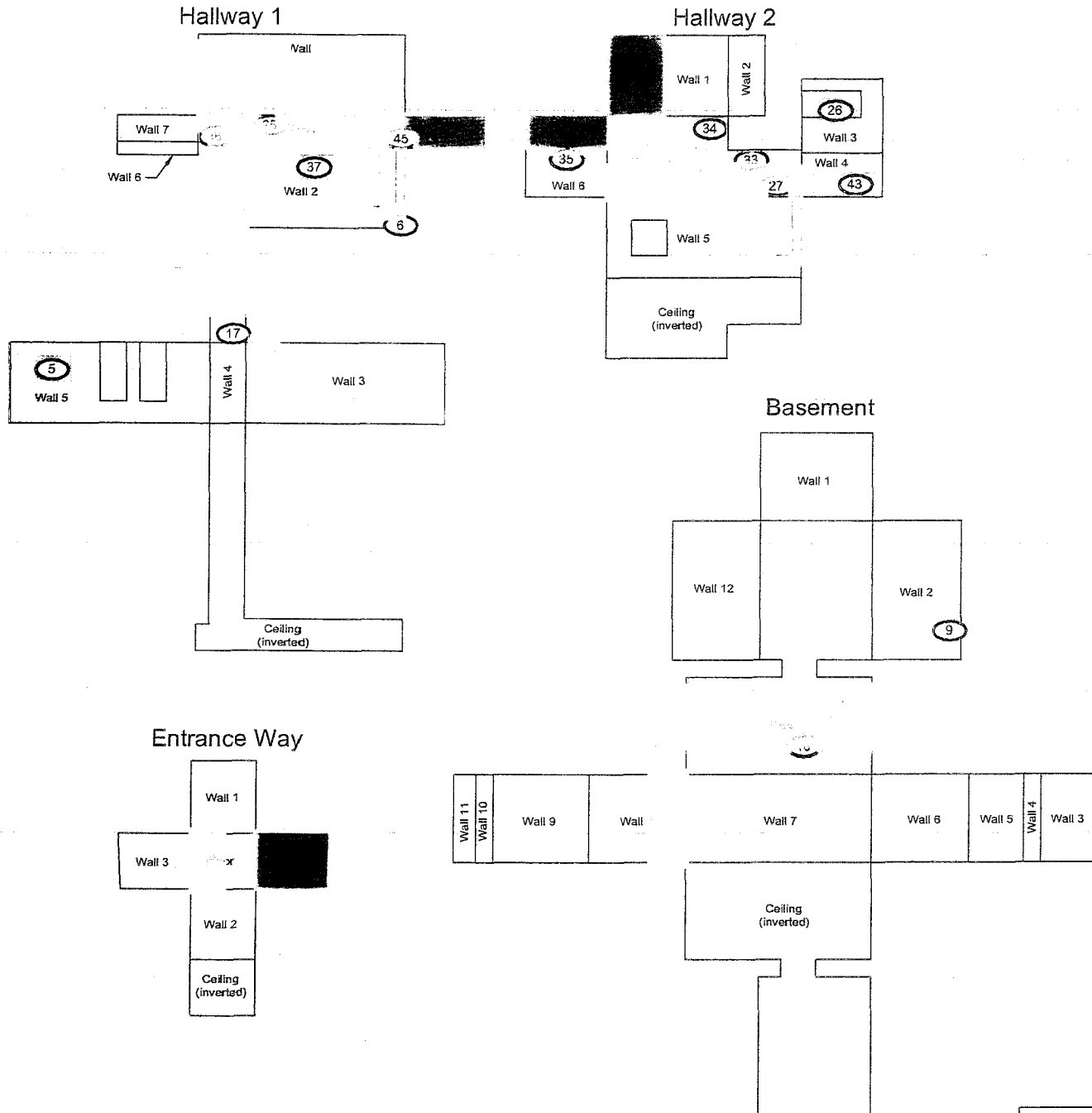
75

PRE-DEMOLITION SURVEY FOR B995

Survey Area: 5 Survey Unit: 995-5-006 Classification: 3
 Building: 995
 Survey Unit Description: Building 995 Interior & Exterior
 Total Area: 1732 sq. m. Total Floor Area: 242 sq. m.

PAGE 3 OF 4

995 Interior



Scan Area

SURVEY MAP LEGEND (P) Smear & TSA Location (D) Smear, TSA & Sample Location (X) Open/Inaccessible Area () Area in Another Survey Unit	Neither the United States Government nor Kaiser Hill Co., nor DynCorp I&ET, nor any agency thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights.	N ↑	0 FEET 25 0 METERS 8 1 inch = 18 feet 1 grid sq. = 1 sq. m.	U.S. Department of Energy Rocky Flats Environmental Technology Site Prepared by: GIS Dept. 303-966-7707 Prepared for: CH2M HILL Communications Group MAP ID: 03-0221/995-INT-3-SC July 9, 2003
Scan Survey Information Survey Instrument ID #(s) & RCT ID #(s): 1, 2, 3, 4				

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PRE-DEMOLITION SURVEY FOR B995

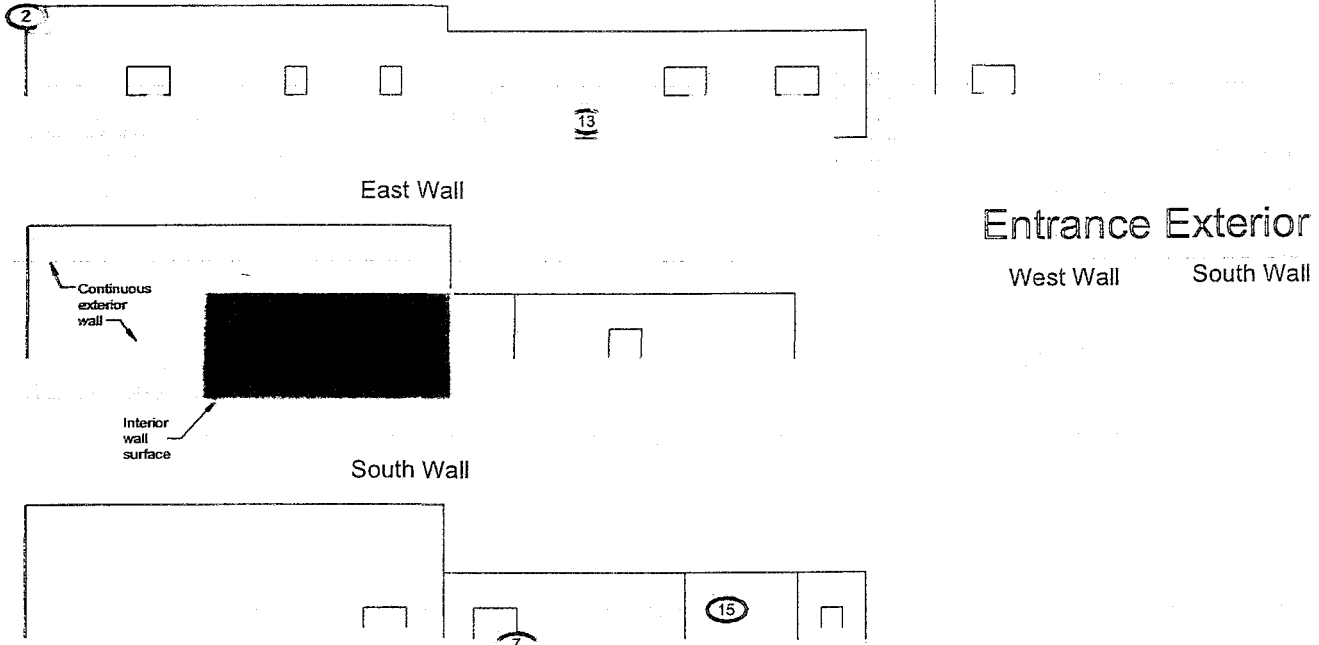
Survey Area: 5 Survey Unit: 995-5-006 Classification: 3
 Building: 995
 Survey Unit Description: Building 995 Interior & Exterior
 Total Area: 1732 sq. m. Total Floor Area: 242 sq. m.

PAGE 4 OF 4

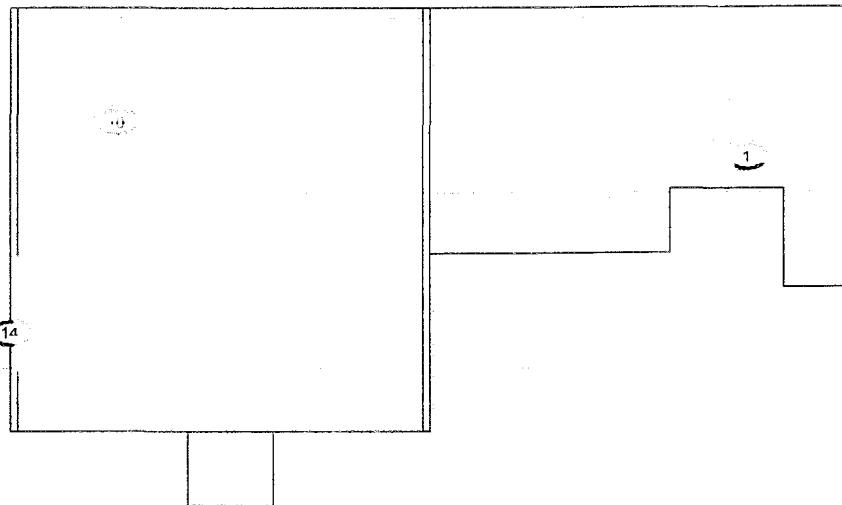
995 Exterior

West Wall

North Wall



B995 Roof



Scan Area

SURVEY MAP LEGEND (u) Smear & TSA Location (u) Smear, TSA & Sample Location ■ Open/Inaccessible Area □ Area in Another Survey Unit	Neither the United States Government nor Kaiser Hill Co., nor DynCorp I&ET, nor any agency thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights.	N ↑	0 FEET 25 0 METERS 8 1 inch = 18 feet 1 grid sq. = 1 sq. m.	U.S. Department of Energy Rocky Flats Environmental Technology Site Prepared by: GIS Dept. 303-966-7707 Prepared for: CH2M HILL Communications Group MAP ID: 03-0221/995-EXT-SC July 9, 2003
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ATTACHMENT D

Chemical Data Summaries and Sample Maps

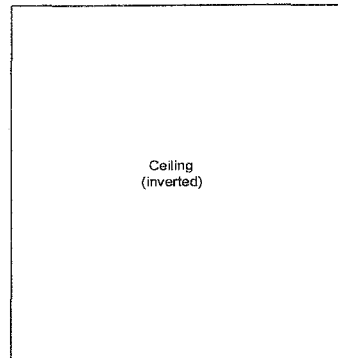
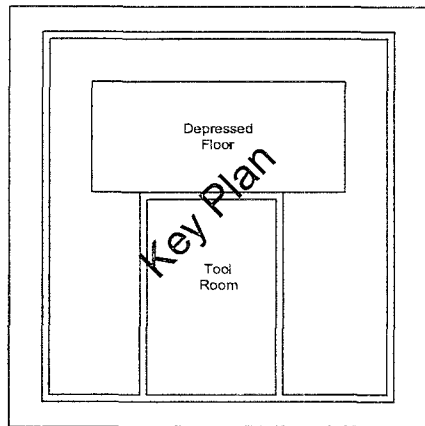
Asbestos Data Summary

Sample Number	Map Survey Location	Room	Material Sampled and Location	Analytical Results
Building 995-RIN 03Z1881				
995-06122003-315-201	1	Storage	12" beige and tan vinyl floor tile with yellow adhesive	None Detected
995-06122003-315-202	2	Hall 2	12" beige and white vinyl floor tile with yellow adhesive	None Detected
995-06122003-315-203	3	Hall 3	White paint on CMU, west wall	None Detected
995-06122003-315-204	4	Hall 2	White paint on CMU, east wall	None Detected
995-06122003-315-205	5	100	Beige paint on CMU, south wall (Lab 2)	None Detected
995-06122003-315-206	6	Hall 3	2' x 4' WADCT	None Detected
995-06122003-315-207	7	Hall 1	Joint compound only	None Detected
995-06122003-315-208	8	Hall 1	Drywall only	None Detected
995-06122003-315-209	9	107	Blue and white sheet vinyl linoleum (Lab 1)	None Detected
Building 988-RIN 03Z1881				
988-06122003-315-201	1	Main	White paint on CMU, east wall	None Detected
988-06122003-315-202	2	Main	White paint on CMU, north wall	None Detected
988-06122003-315-203	3	Exterior	White and beige paint on CMU, exterior east wall	None Detected
Building 990A-RIN 03Z1881				
990A-06122003-315-201	1	Main	White paint on CMU, east wall	None Detected
990A-06122003-315-202	2	Exterior	Beige paint on CMU, east wall	None Detected
990A-06122003-315-203	3	Exterior	Beige paint on CMU, south wall	None Detected

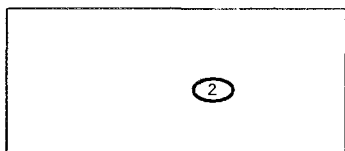
CHEMICAL SAMPLE MAP

Building 988 Interior Asbestos

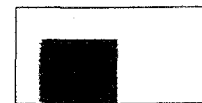
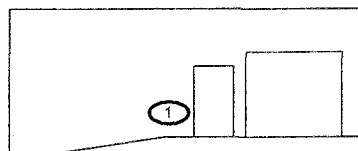
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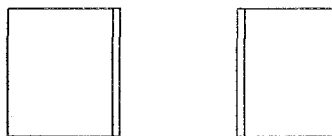
North Wall



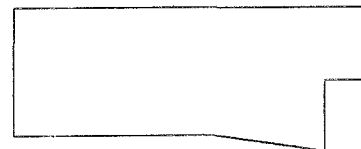
East Wall



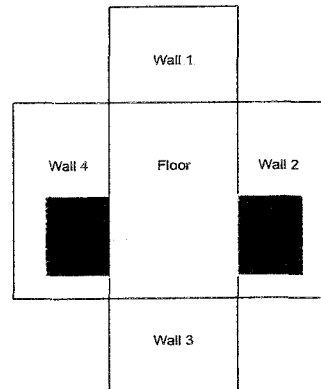
South Wall



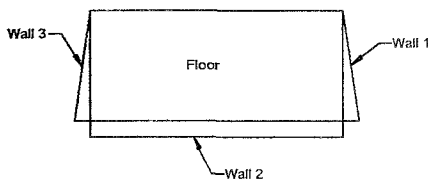
West Wall



Tool Room



Depressed Floor

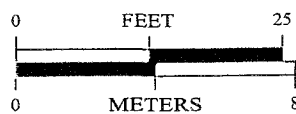


SURVEY MAP LEGEND

- Asbestos Sample Location
- Beryllium Sample Location
- Lead Sample Location
- RCRA/CERCLA Sample Location
- PCB Sample Location

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- Area in Another Survey Unit



1 inch = 18 feet 1 grid sq. = 1 sq. m.

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Communications Group



MAP ID: 03-0221/988IN-ASB

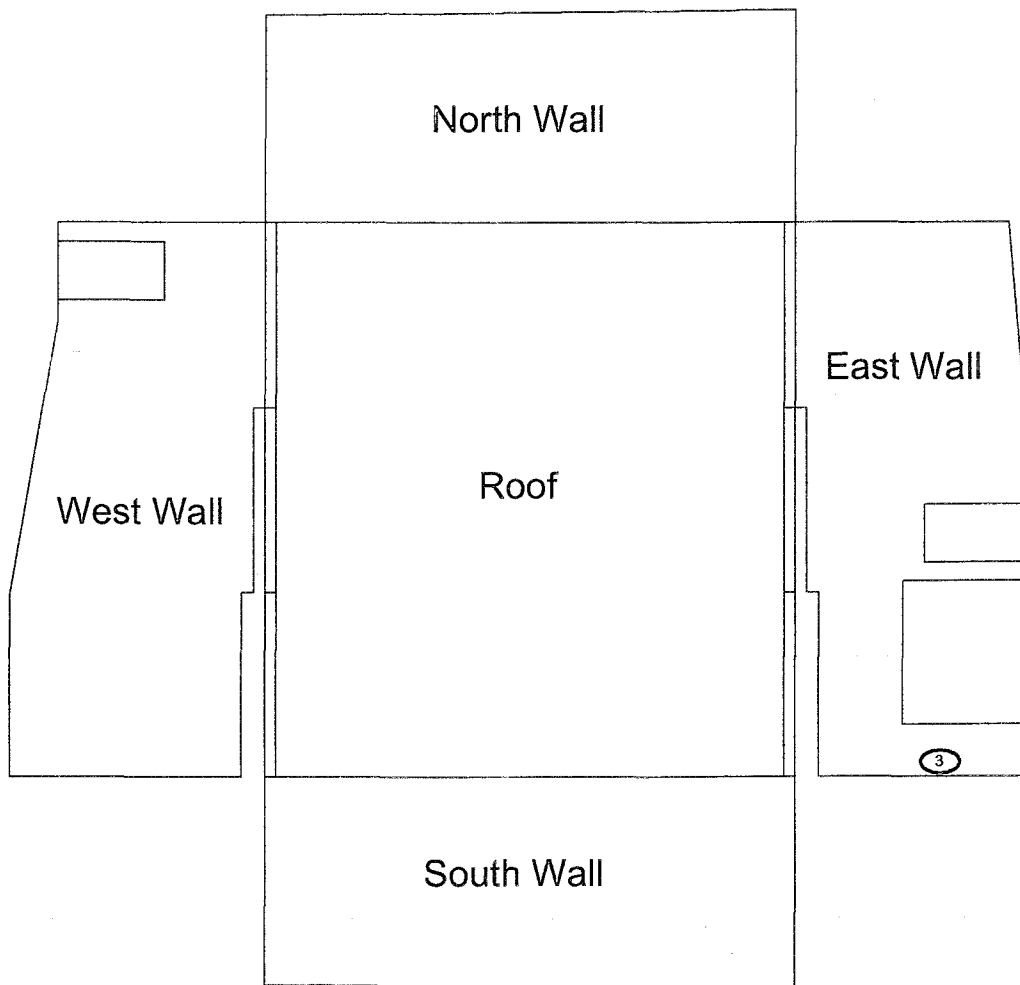
July 7, 2003

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CHEMICAL SAMPLE MAP

Building 988 Exterior
Asbestos

PAGE 2 OF 2

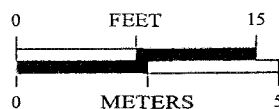


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MAP ID: 03-0000/988EX-ASB

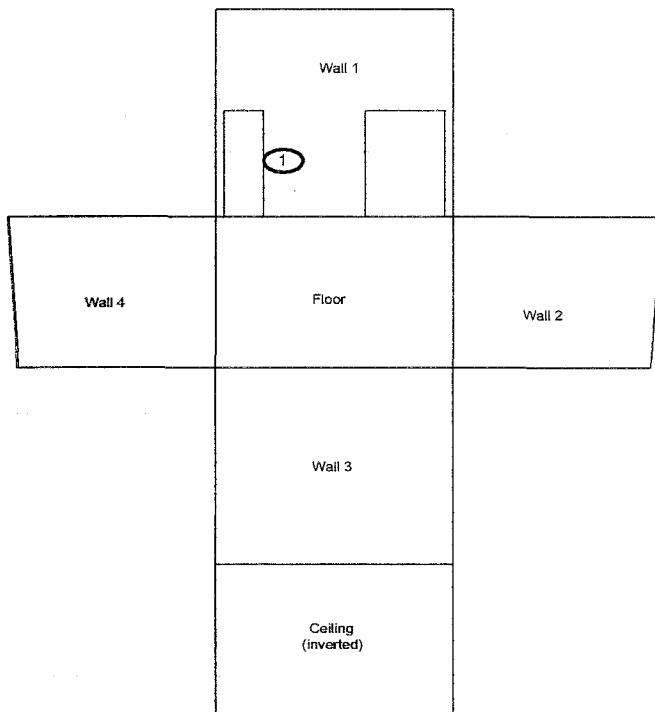
July 7, 2003

CHEMICAL SAMPLE MAP

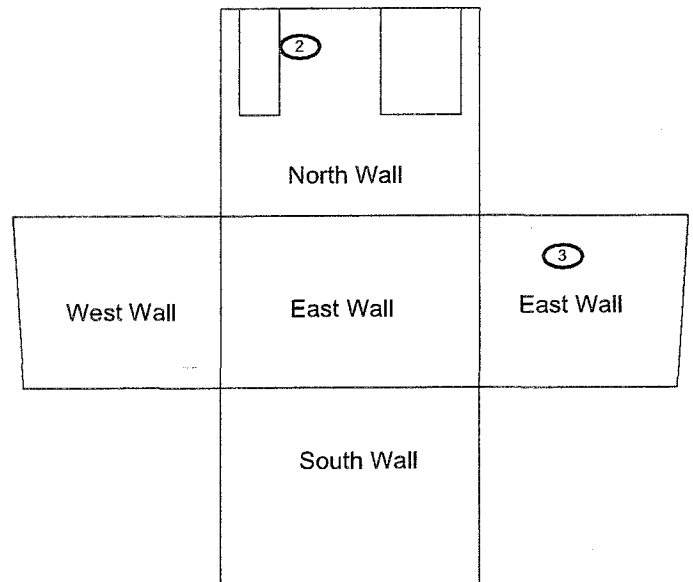
Building 990A Interior and Exterior Asbestos

PAGE 1 OF 1

B990A Interior



B990A Exterior

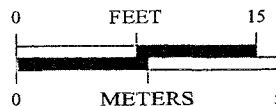


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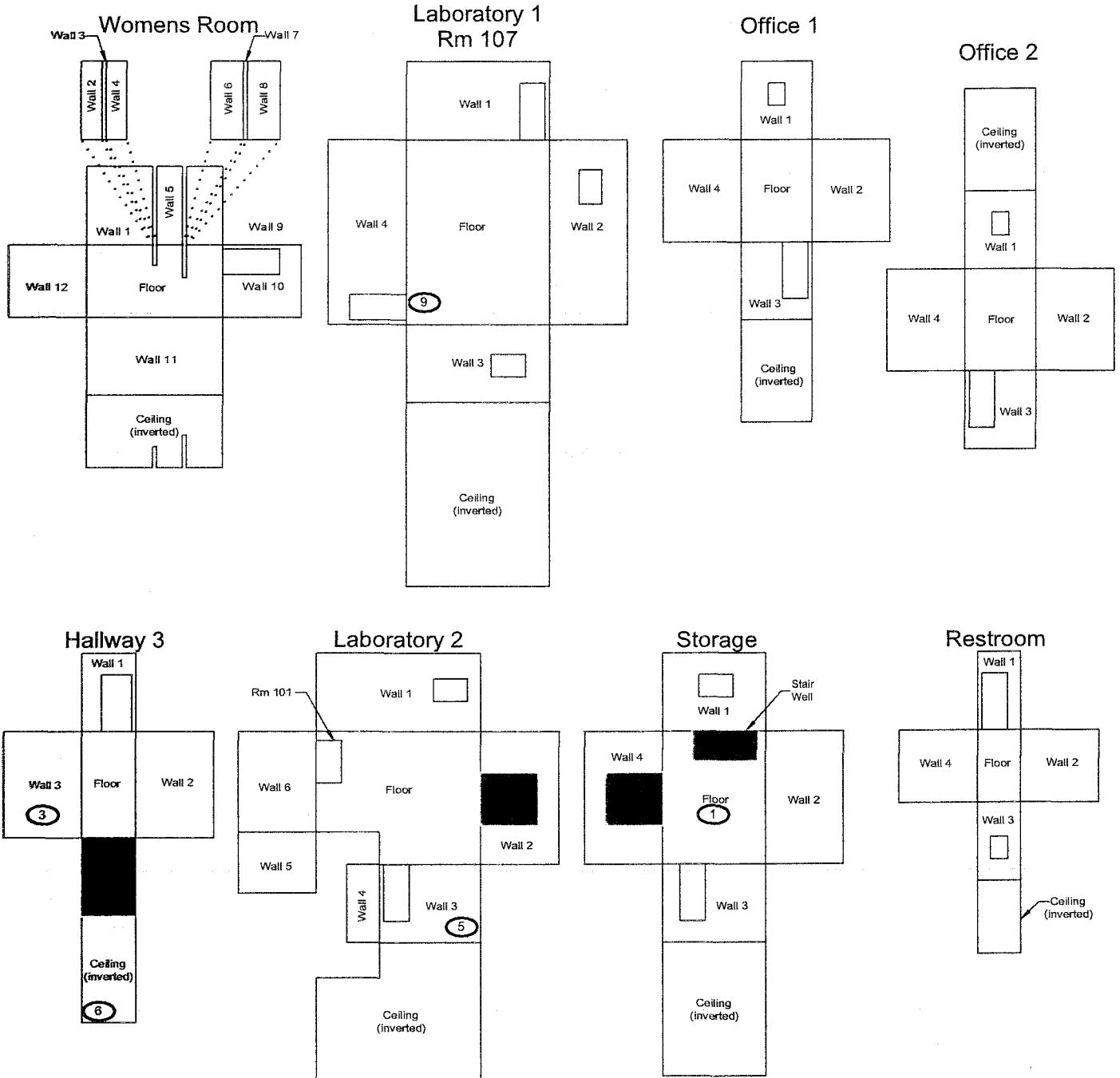
MAP ID: 03-0221/990A-ASB

July 7, 2003

CHEMICAL SAMPLE MAP

Building 995 Interior Asbestos

PAGE 1 OF 2

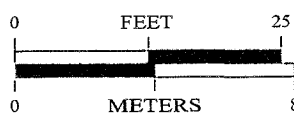


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MAP ID: 03-0221/995IN2-ASB

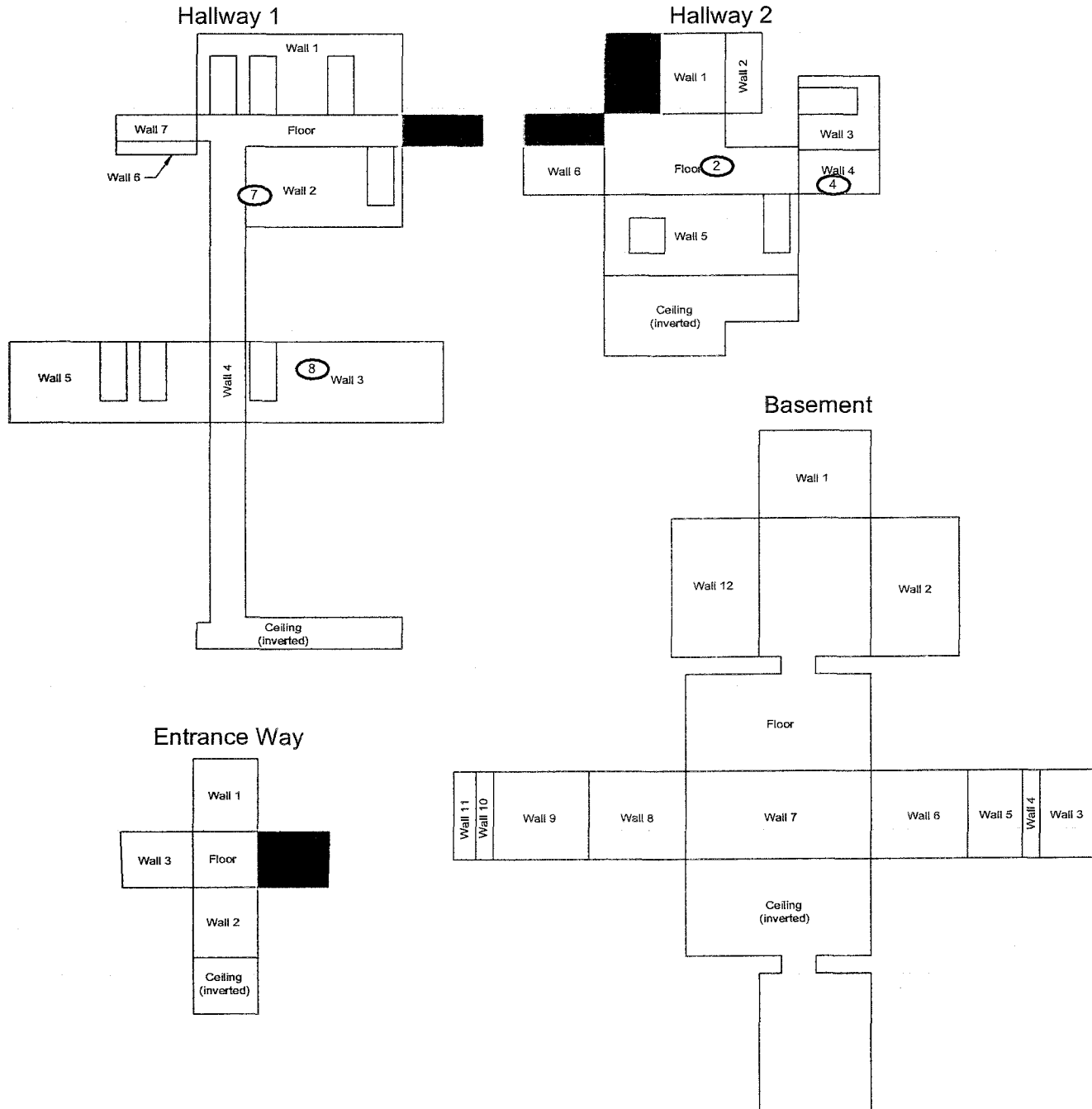
July 7, 2003

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CHEMICAL SAMPLE MAP

Building 995 Interior Asbestos

PAGE 2 OF 2

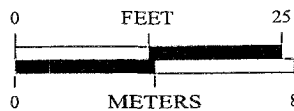


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MAP ID: 03-0221/995IN3-ASB

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Beryllium Data Summary

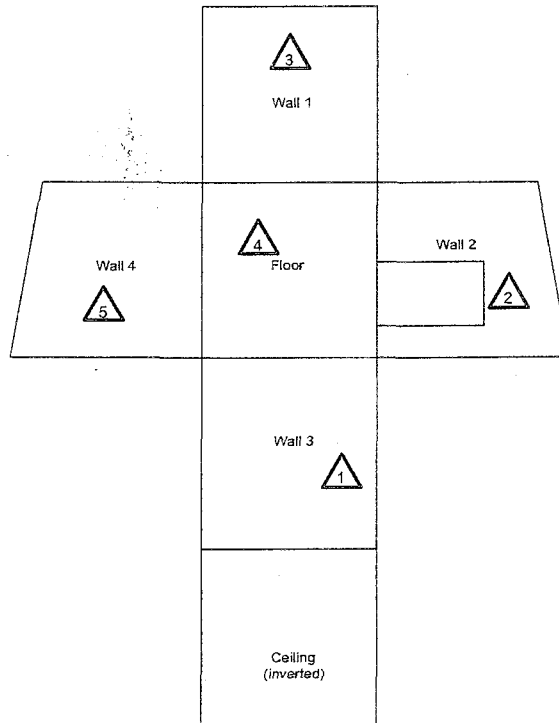
Sample Number	Map Survey Point Location	Room	Sample Location	Result ($\mu\text{g}/100\text{ cm}^2$)
Building 995-RIN 03Z1880				
995-06122003-315-101	1	Base	On concrete floor	< 0.1
995-06122003-315-102	2	Hall 2	Top of electrical panel, north wall	< 0.1
995-06122003-315-103	3	101	On floor by sanitary drain berm	< 0.1
995-06122003-315-104	4	Lab 1	On linoleum floor	< 0.1
995-06122003-315-105	5	Men's	On concrete floor by locker #6	< 0.1
Building 988-RIN 03Z1880				
988-06122003-315-101	1	Depress	Top of gray EFT filter pipe	< 0.1
988-06122003-315-102	2	Depress	On concrete floor	< 0.1
988-06122003-315-103	3	Tool	On metal shelf, west wall	< 0.1
988-06122003-315-104	4	Tool	On sump pump housing	< 0.1
988-06122003-315-105	5	Main	On concrete floor at entry	< 0.1
Building 988A-RIN 03Z1880				
988A-06122003-315-101	1	Main	Top of 480V electrical transformer	< 0.1
988A-06122003-315-102	2	Main	On window sill, west wall	< 0.1
988A-06042003-315-103	3	Main	On electrical control panel, south wall	< 0.1
988A-06122003-315-104	4	Main	On concrete pad, east wall	< 0.1
988A-06122003-315-105	5	Main	On angle iron brace, north wall	< 0.1
Building T974A-RIN 03Z1880				
T974A-06122003-315-101	1	Main	Top of H ₂ S monitor, south wall	< 0.1
T974A-06122003-315-102	2	Main	Top of 480V power panel, south wall	< 0.1
T974A-06122003-315-103	3	Main	Top of fluorescent light fixture	< 0.1
T974A-06122003-315-104	4	Main	Top of fluorescent light fixture	< 0.1
T974A-06122003-315-105	5	Main	Top of fluorescent light fixture	< 0.1
Building 990A-RIN 03Z1880				
990A-06122003-315-101	1	Main	Top of 480V common panel, north wall	< 0.1
990A-06122003-315-102	2	Main	On concrete floor	< 0.1
990A-06122003-315-103	3	Main	Top of metal storage cabinet	< 0.1
990A-06122003-315-104	4	Main	On inside of roll-up door	< 0.1
990A-06122003-315-105	5	Main	Top of blue metal storage cabinet	< 0.1
Building 990-RIN 03Z1880				
990-06122003-315-101	1	Main	Top of electrical panel, south wall	< 0.1
990-06122003-315-102	2	Main	Top of pump 336-060	< 0.1
990-06122003-315-103	3	Main	Top of metal sampling table/cabinet, west wall	< 0.1
990-06122003-315-104	4	Main	On window sill, north wall	< 0.1
990-06122003-315-105	5	Main	On metal base of sump pump 336-060	< 0.1

Building 952-RIN 03Z1880				
952-06122003-315-101	1	Main	Metal horizontal Z-beam brace, south wall	< 0.1
952-06122003-315-102	2	Main	Metal header, east door	< 0.1
952-06122003-315-103	3	Main	On metal top plate, north wall	< 0.1
952-06122003-315-104	4	Main	Metal horizontal brace at center post	< 0.1
952-06122003-315-105	5	Main	Top of metal bench, west wall	< 0.1

CHEMICAL SAMPLE MAP

Building 952 Interior
Beryllium

PAGE 1 OF 1

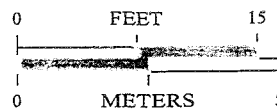


SURVEY MAP LEGEND

- Asbestos Sample Location
- Beryllium Sample Location
- Lead Sample Location
- RCRA/CERCLA Sample Location
- PCB Sample Location

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Prepared for:

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MAP ID: 03-0221/952-BE

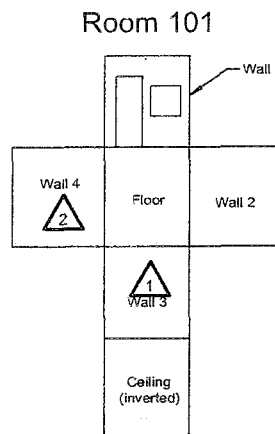
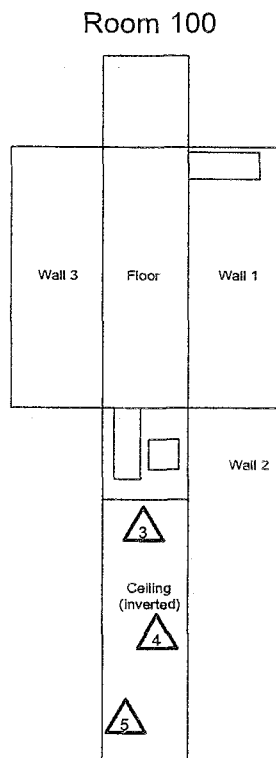
July 2, 2003

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CHEMICAL SAMPLE MAP

T974A Interior
Beryllium

PAGE 1 OF 1

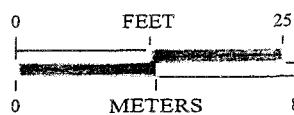


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MAP ID: 03-0221/T974A-BE

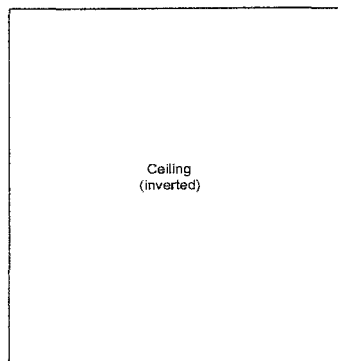
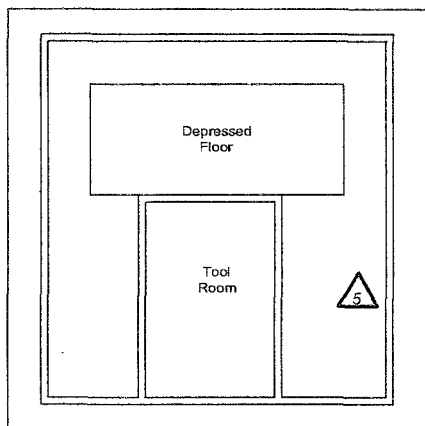
July 3, 2003

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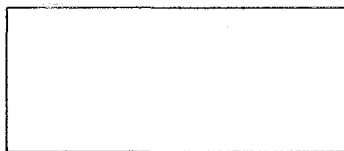
CHEMICAL SAMPLE MAP

Building 988 Interior Beryllium

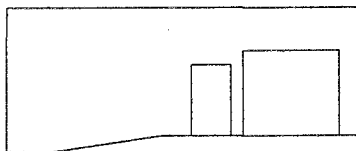
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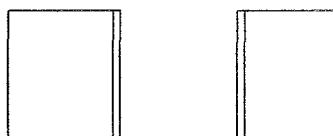
North Wall



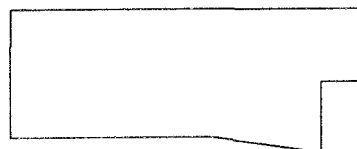
East Wall



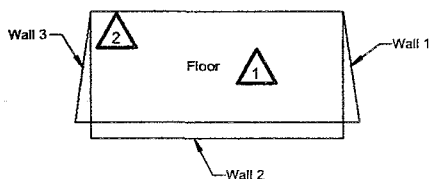
South Wall



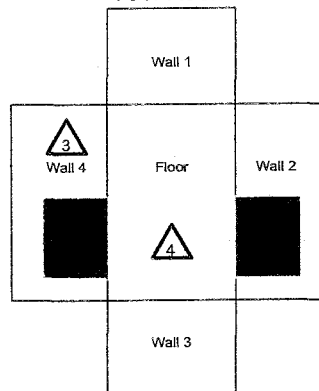
West Wall



Depressed Floor



Tool Room

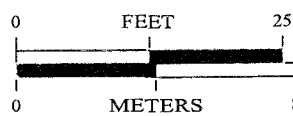


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- Lead Sample Location
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- PCB Sample Location

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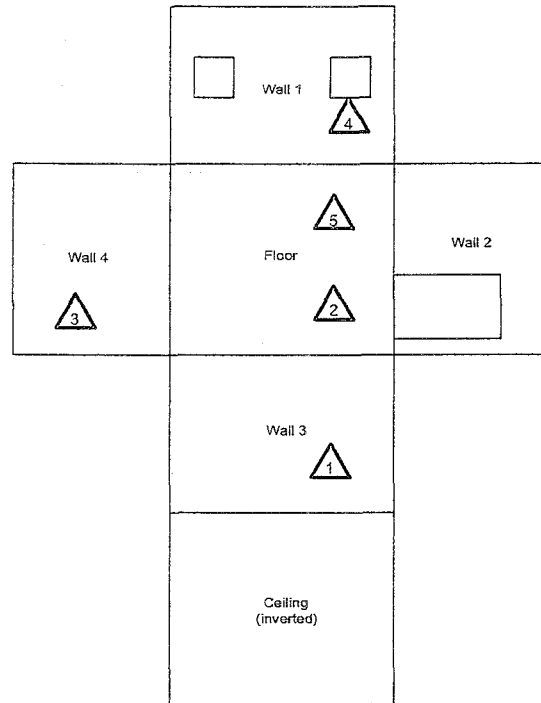
MAP ID: 03-0221/988IN-BE

July 3, 2003

CHEMICAL SAMPLE MAP

Building 990 Interior
Beryllium

PAGE 1 OF 1

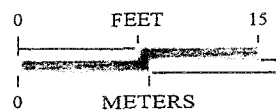


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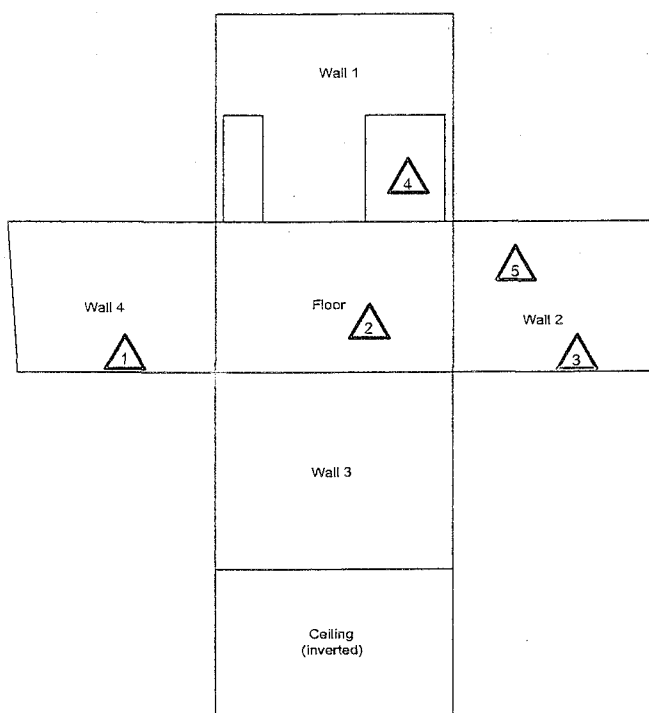
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July 3, 2003

CHEMICAL SAMPLE MAP

Building 990A Interior
Beryllium

PAGE 1 OF 1

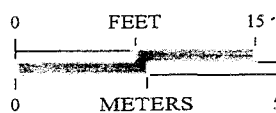


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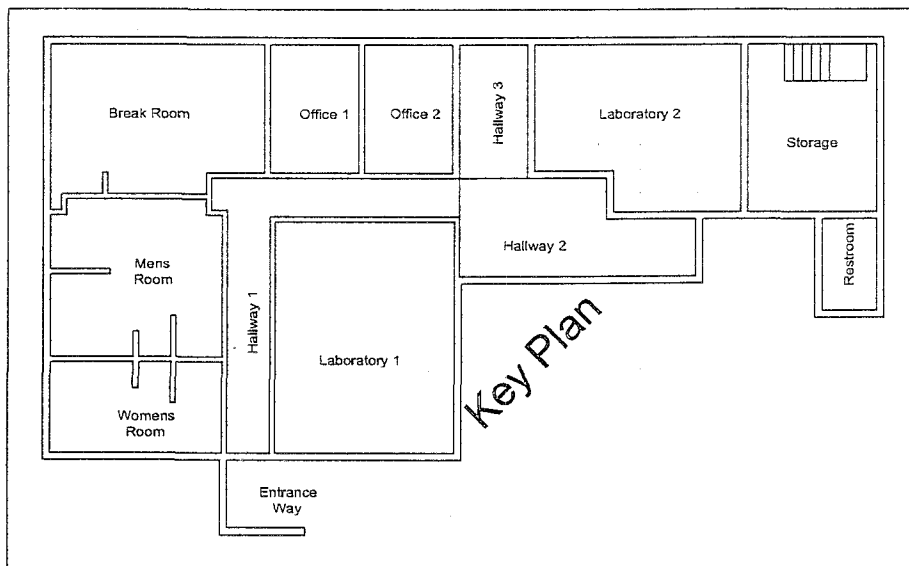
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July 3, 2003

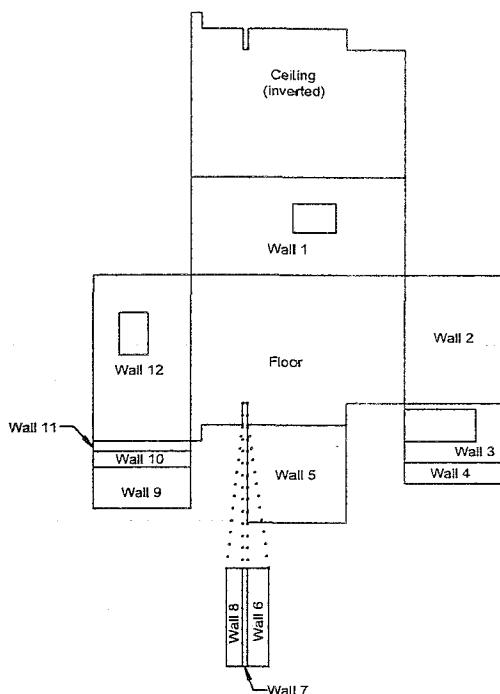
CHEMICAL SAMPLE MAP

Building 995 Interior Beryllium

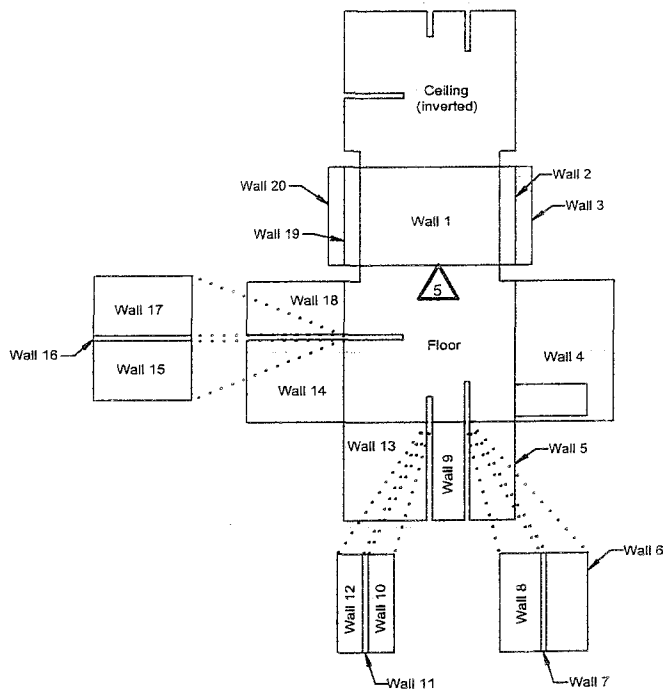
PAGE 1 OF 3



Break Room



Mens Room

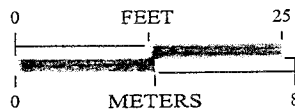


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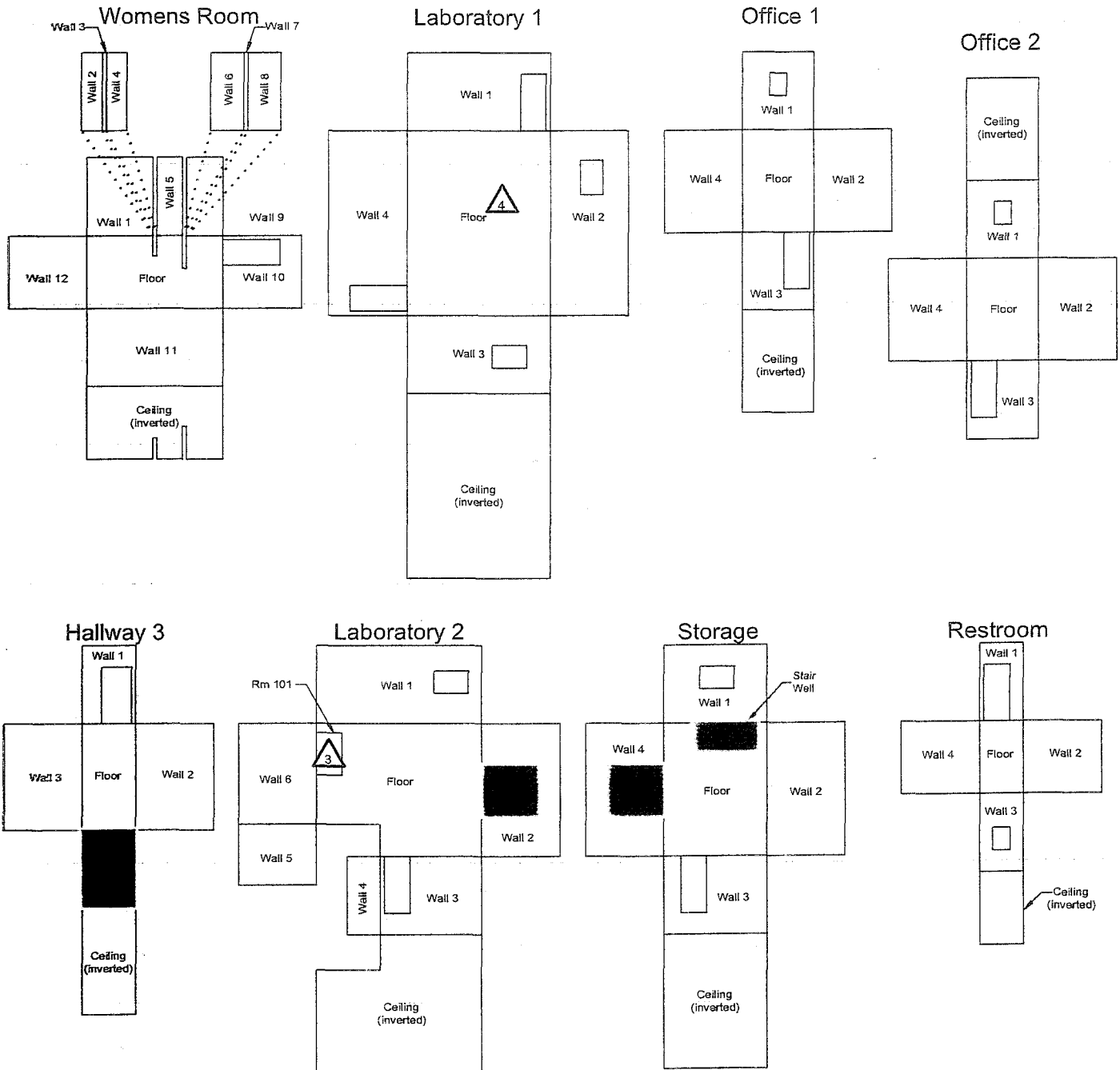
July 3, 2003

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CHEMICAL SAMPLE MAP

Building 995 Interior
Beryllium

PAGE 2 OF 3

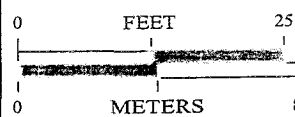


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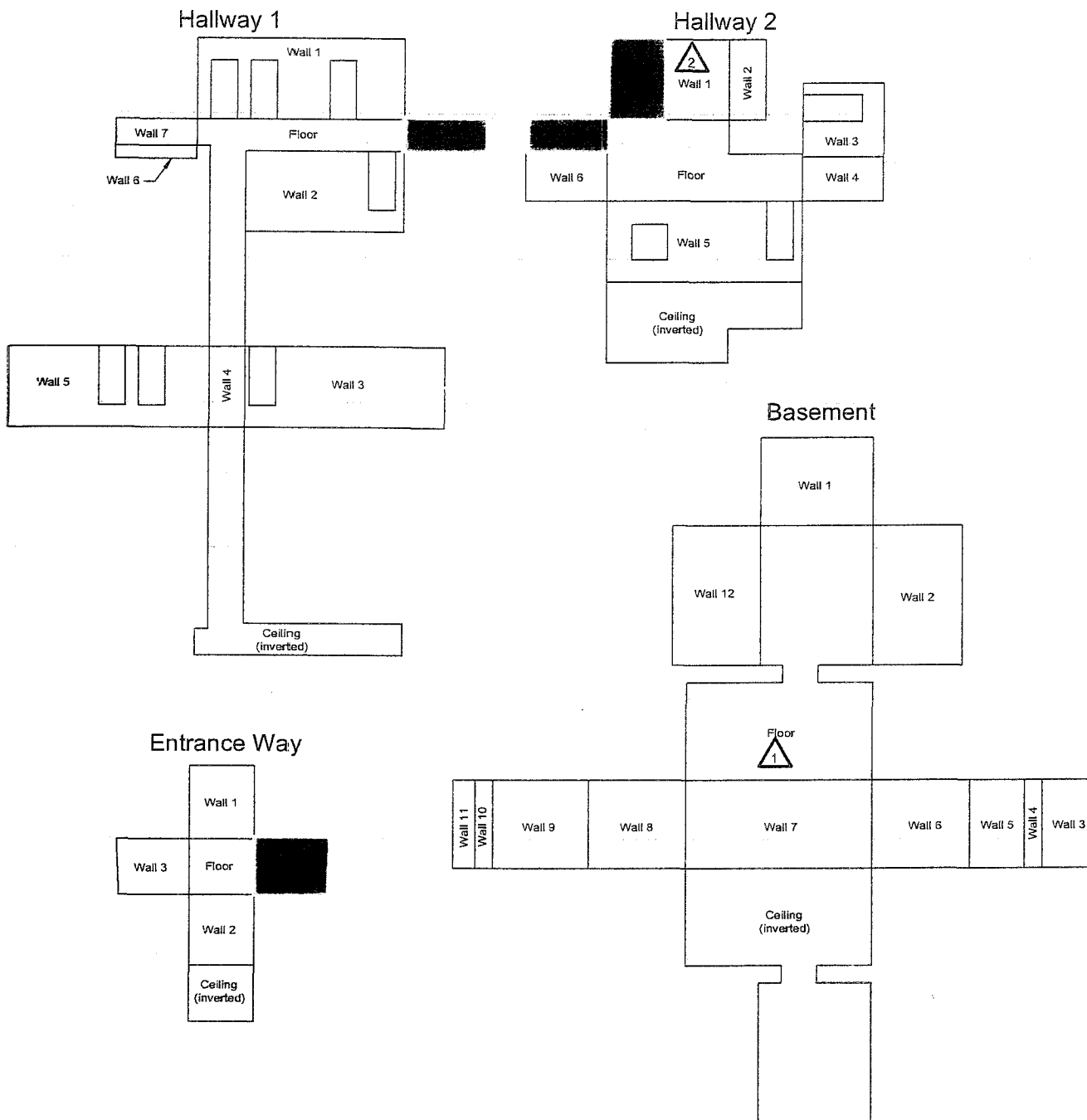
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July 3, 2003

CHEMICAL SAMPLE MAP

Building 995 Interior Beryllium

PAGE 3 OF 3

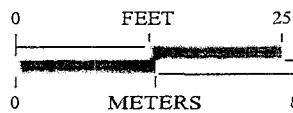


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- Open/Unaccessible Area
- Area in Another Survey Unit



1 inch = 18 feet 1 grid sq. = 1 sq. m.

U.S. Department of Energy
Rocky Flats Environmental Technology Site

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ATTACHMENT E

Data Quality Assessment (DQA) Detail

DATA QUALITY ASSESSMENT (DQA)

VERIFICATION & VALIDATION OF RESULTS

V&V of the data confirm that appropriate quality controls are implemented throughout the sampling and analysis process, and that any substandard controls result in qualification or rejection of the data in question. The required quality controls and their implementation are summarized in a tabular, checklist format for each category of data – radiological surveys and chemical analyses (specifically asbestos and beryllium.)

DQA criteria and results are provided in a tabular format for each suite of surveys or chemical analyses performed; the radiological survey assessment is provided in Table E-1, asbestos in Table E-2 and beryllium in Table E-3. A data completeness summary for all results is given in Table E-4.

All relevant Quality records supporting this report are maintained in the RISS Characterization Project Files. This report will be submitted to the CERCLA Administrative Record for permanent storage within 30 days of Regulator approval. All radiological data are organized into Survey Packages, which correlate to unique (MARSSIM) Survey Units. Chemical data are organized by RIN (Report Identification Number) and are traceable to the sample number and corresponding sample location.

Beta/gamma survey designs were not implemented for the Area 5-Group 16 facilities based on the conservatism of the transuranic limits used as DCGLs in the unrestricted release decision process. Survey designs were implemented based on the transuranic limits used as DCGLs in the unrestricted release decision process. Elevated net activity on two interior sample locations had coupon samples taken and analyzed by ISOCS Canberra gamma spectroscopy. No transuranic isotope activity was detected; elevated activity was determined to be uranium and/or other naturally occurring isotope activity. Consequently, coupon sample results were evaluated against, and were less than the uranium DCGL_w (5,000 dpm/100cm²) unrestricted release limit. All survey results were evaluated against, and were less than the Transuranic DCGL_w (100 dpm/100cm²) and the Uranium DCGL_w (5,000 dpm/100cm²) unrestricted release limits.

Consistent with EPA's G-4 DQO process, the radiological survey design (for those survey units performed per PDS requirements) was optimized by checking actual measurement results (acquired during pre-demolition surveys) against model output with original estimates. Use of actual sample/survey (result) variances in the MARSSIM DQO model confirms that an adequate number of surveys were acquired.

SUMMARY

In summary, the data presented in this report have been verified and validated relative to the quality requirements and project decisions as stated in the original DQOs. All data are useable based on qualifications stated herein and are considered satisfactory without qualification. All media surveyed and sampled yielded results less than their associated action levels and with acceptable uncertainties, except the below anomalous conditions:

- Initial sample net activity was greater than the Transuranic DCGL_w (100 dpm/100cm²) at locations 2 (100.1 dpm/100cm²), 3 (127.2 dpm/100cm²), 7 (102.9 dpm/100cm²), 11 (100.1 dpm/100cm²) and 13 (157.9 dpm/100cm²) in survey unit 952-5-001. A coupon sample was taken at location 13 (the highest reading of the five elevated locations and representative of all five locations) and analyzed by Canberra ISOCS gamma spectroscopy. No Transuranic activity was detected. The sample activity was determined to be from uranium and/or naturally occurring isotopes. The gamma spectroscopy result was below the Uranium DCGL_w (5,000 dpm/100cm²). All survey results are less than the applicable DCGLs, therefore, no further investigation is required. On this basis, Transuranic values for locations 2, 3, 7, 11 and 13 are reported as zero (0.0) net activity in the TSA Data Summary.
- Initial sample net activity was greater than the Transuranic DCGL_w (100 dpm/100cm²) at location 3 (490.6 dpm/100cm²) in survey unit T974A-5-002. The location was sealed, allowed to decay and re-surveyed. The re-survey result was less than the Transuranic DCGL_w, therefore, no further investigation is required. The re-survey result is the value reported in the TSA Data Summary.
- Initial sample net activity was greater than the Transuranic DCGL_w (100 dpm/100cm²) at location 13 (111.3 dpm/100cm²) in survey unit 990A-5-005. A concrete surface sample was taken at location 13 and analyzed by Canberra ISOCS gamma spectroscopy. No transuranic activity was detected. The sample activity was determined to be from uranium and/or naturally occurring isotopes. The gamma spectroscopy result was below the Uranium DCGL_w (5,000 dpm/100cm²). All survey results are less than the applicable DCGLs, therefore, no further investigation is required. On this basis, the Transuranic value for location 13 is reported as zero (0.0) net activity in the TSA Data Summary.

Based upon an independent review of the radiological data, it is determined that the original project DQOs satisfied MARSSIM guidance. Minimum survey requirements were met, sampling/survey protocol was performed in accordance with applicable procedures, survey units were properly designed and bounded, and instrument performance and calibration were within acceptable limits ensuring data result accuracy. All facility contamination levels were below applicable unrestricted release levels confirming a Type 1 facility classification for the Area 5-Group 16 cluster.

Chain of Custody was intact; documentation was complete, hold times were acceptable (where applicable,) and packaging integrity/custody seals were maintained throughout the sampling/analysis process. Level 2 Isolation Controls have been posted to prevent the inadvertent introduction of contamination into the facility. On this basis, the Area 5 - Group 16 facilities meet the unrestricted release criteria with the confidences stated herein.

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Table E-1 V&V of Radiological Results, Area 5-Group 16 Facilities

V&V CRITERIA, RADIOLOGICAL SURVEYS		K-H RSP 16.00 Series MARSSIM (NUREG-1575)		COMMENTS
QUALITY REQUIREMENTS		Measure	frequency	
ACCURACY	Parameters			
	initial calibrations	90% < x < 110%	≥ 1	Multi-point calibration through the measurement range encountered in the field; programmatic records.
	daily source checks	80% < x < 120%	≥ 1/day	Performed daily/within range.
	local area background: Field	typically < 10 dpm	≥ 1/day	All local area backgrounds were within expected ranges (i.e., no elevated anomalies.)
PRECISION	field duplicate measurements for TSA	≥ 5% of real survey points	≥ 10% of reals	N/A
REPRESENTATIVENESS	MARSSIM methodology: Survey Units 952-5-001, T974A-5-002, 988-5-003, 988A-5-001, 990-5-004, 990A-5-005 and 995-5-006 (interior and exterior).	statistical and biased	NA	Random w/ statistical confidence.
	Survey Maps	NA	NA	Random and biased measurement locations controlled/mapped to ± 1m.
	Controlling Documents (Characterization Pkg; RSPs)	Qualitative	NA	Refer to the Characterization Package (planning document) for field/sampling procedures (located in Project files); thorough documentation of the planning, sampling/analysis process, and data reduction into formats.
COMPARABILITY	units of measure	dpm/100cm ²	NA	Use of standardized engineering units in the reporting of measurement results.
COMPLETENESS	Plan vs. Actual surveys usable results vs. unusable	>95% >95%	NA	See Table E-4 for details.
SENSITIVITY	detection limits	TSA: ≤ 50 dpm/100cm ² RA: ≤ 10 dpm/100cm ²	all measures	MDAs ≤ 50% DCGL _w per MARSSIM guidelines.

Table E-2 V&V of Asbestos Results, Area 5-Group 16 Facilities

V&V CRITERIA, CHEMICAL ANALYSES		DATA PACKAGE		COMMENTS
ASBESTOS	METHOD: EPA 600/R-93/116	LAB ---->	Reservoirs Environmental, Inc.; Denver, Co.	
QUALITY REQUIREMENT		RIN ---->	RIN03Z1881	
ACCURACY	Calibrations: Initial/continuing	Measure	Frequency	
		below detectable amounts	≥1	Semi-quantitative, per (microscopic) visual estimation.
PRECISION	Actual Number Sampled LCSD Lab duplicates	all below detectable amounts	≥ 15 samples	Semi-quantitative, per (microscopic) visual estimation.
REPRESENTATIVENESS	COC	Qualitative	NA	Chain-of-Custody intact: completed paperwork, containers w/ custody seals.
	Hold times/preservation	Qualitative	NA	N/A
	Controlling Documents (Plans, Procedures, maps, etc.)	Qualitative	NA	See original Chemical Characterization Package (planning document); for field/sampling procedures (located in project file); thorough documentation of the planning, sampling/analysis process, and data reduction into formats.
COMPARABILITY	Measurement Units	% by bulk volume	NA	Use of standardized engineering units in the reporting of measurement results.
COMPLETENESS	Plan vs. Actual samples Usable results vs. unusable	Qualitative	NA	Final number of samples at Certified Inspector's discretion, See Table E-4.
SENSITIVITY	Detection limits	<1% by volume	all measures	N/A

Table E-3 V&V of Beryllium Results, Area 5-Group 16 Facilities

V&V CRITERIA, CHEMICAL ANALYSES		DATA PACKAGE		COMMENTS
BERYLLIUM	Prep: NMAM 7300 METHOD: OSHA ID-125G	LAB ---->	Reservoirs Environmental Inc. RIN ---->	
	QUALITY REQUIREMENTS			
ACCURACY	Calibrations	Measure	Frequency	No qualifications significant enough to change project decisions, i.e., classification of Type 1 facilities confirmed. All results were below associated action levels.
	Initial	linear calibration	≥1	
	Continuing	80%<%R<120%	≥1	
	LCS/MS	80%<%R<120%	≥1	
PRECISION	Blanks - lab & field	<MDL	≥1	
	interference check std (ICP)	NA	NA	
	LCSD	80%<%R<120% (RPD<20%)	≥1	
	field duplicate	all results < RL	≥1	
REPRESENTATIVENESS	COC	Qualitative	NA	
	hold times/preservation	Qualitative	NA	
	Controlling Documents (Plans, Procedures, maps, etc.)	Qualitative	NA	
COMPARABILITY	measurement units	ug/100cm ²	NA	
COMPLETENESS	Plan vs. Actual samples	>95%	NA	
	usable results vs. unusable	>95%	NA	
SENSITIVITY	detection limits	MDL of 0.012 ug/100cm ²	all measures	

Table E-4 Data Completeness Summary, Area 5-Group 16 Facilities

ANALYTE	Building/Area/U nit	Sample Number Planned (Real & QC) ^A	Sample Number Taken (Real & QC)	Project Decisions (Conclusions) & Uncertainty	Comments (RIN, Analytical Method, Qualifications, etc.)
Asbestos	Building 952 (interior)	3 biased (interior)	0 samples taken	No ACM present, all results < 1% by volume	40 CFR763.86; CCR 1001-10; EPA 600/R-93/116 No building materials suspected of containing asbestos were identified for sampling during walk-down.
Asbestos	Building 988 (interior)	6 biased (interior)	3 biased (2 interior/1 exterior)	No ACM present, all results < 1% by volume	40 CFR763.86; CCR 1001-10; EPA 600/R-93/116 RIN03Z1881
Asbestos	Building 990 (interior)	3 biased (interior)	0 samples taken	No ACM present, all results < 1% by volume	40 CFR763.86; CCR 1001-10; EPA 600/R-93/116 No building materials suspected of containing asbestos were identified for sampling during walk-down.
Asbestos	Building 990A (interior)	3 biased (interior)	3 biased (1 interior/2 exterior)	No ACM present, all results < 1% by volume	40 CFR763.86; CCR 1001-10; EPA 600/R-93/116 RIN03Z1881
Asbestos	Building 995 (interior)	6 biased (interior)	9 biased (interior)	No ACM present, all results < 1% by volume	40 CFR763.86; CCR 1001-10; EPA 600/R-93/116 RIN03Z1881
Beryllium	Building 952 (interior)	5 biased (interior)	5 biased (interior)	No contamination found, all results are less than associated action levels	OSHA ID-125G RIN03Z1880 No results above action level (0.2ug/100cm ²) or investigative level (0.1 ug/100cm ²).
Beryllium	Building T974A (interior)	5 biased (interior)	5 biased (interior)	No contamination found, all results are less than associated action levels	OSHA ID-125G RIN03Z1880 No results above action level (0.2ug/100cm ²) or investigative level (0.1 ug/100cm ²).

Table E-4 Data Completeness Summary, Area 5-Group 16 Facilities

ANALYTE	Building/Area/U nit	Sample Number Planned (Real & QC) ^A	Sample Number Taken (Real & QC)	Project Decisions (Conclusions) & Uncertainty	Comments (RIN, Analytical Method, Qualifications, etc.)
Beryllium	Building 988 (interior)	5 biased (interior)	5 biased (interior)	No contamination found, all results are less than associated action levels	OSHA ID-125G RIN03Z1880 No results above action level (0.2ug/100cm ²) or investigative level (0.1 ug/100cm ²).
Beryllium	Building 990 (interior)	5 biased (interior)	5 biased (interior)	No contamination found, all results are less than associated action levels	OSHA ID-125G RIN03Z1880 No results above action level (0.2ug/100cm ²) or investigative level (0.1 ug/100cm ²).
Beryllium	Building 990A (interior)	5 biased (interior)	5 biased (interior)	No contamination found, all results are less than associated action levels	OSHA ID-125G RIN03Z1880 No results above action level (0.2ug/100cm ²) or investigative level (0.1 ug/100cm ²).
Beryllium	Building 995 (interior)	5 biased (interior)	5 biased (interior)	No contamination found, all results are less than associated action levels	OSHA ID-125G RIN03Z1880 No results above action level (0.2ug/100cm ²) or investigative level (0.1 ug/100cm ²).

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Table E-4 Data Completeness Summary, Area 5-Group 16 Facilities

ANALYTE	Building/Area/Unit	Sample Number Planned (Real & QC) ^A	Sample Number Taken (Real & QC)	Project Decisions (Conclusions) & Uncertainty	Comments (RIN, Analytical Method, Qualifications, etc.)
Radiological	Survey Area 5 Survey Unit: 952-5-001 Building 952 (interior and exterior)	20 α TSA (15 random and 5 biased) and 20 α Smears (15 random and 5 biased) 5 α TSA and 5 α Smears (equipment) 2 QC TSA 5% scan of interior and exterior surface	20 α TSA (15 random and 5 biased) and 20 α Smears (15 random and 5 biased) 5 α TSA and 5 α Smears (equipment) 2 QC TSA 5% scan of interior and exterior surfaces	No contamination at any location; all values below PDS unrestricted release levels	Transuranic and/or Uranium DCGLs as applicable. Initial sample net activity was greater than the Transuranic DCGL _w (100 dpm/100cm ²) at locations 2 (100.1 dpm/100cm ²), 3 (127.2 dpm/100cm ²), 7 (102.9 dpm/100cm ²), 11 (100.1 dpm/100cm ²) and 13 (157.9 dpm/100cm ²). A coupon sample was taken and analyzed by gamma spectroscopy. No Transuranic activity was detected. Activity was determined to be from uranium and/or naturally occurring isotope. The gamma spectroscopy result was below the Uranium DCGL _w (5000 dpm/100cm ²). All survey results are less than the applicable DCGLs, therefore, no further investigation is required. On this basis, Transuranic values for locations 2, 3, 7, 11 and 13 are reported as zero (0.0) net activity in the TSA Data Summary.
Radiological	Survey Area 5 Survey Unit: T974A-5-002 Building T974A (interior and exterior)	20 α TSA (15 random and 5 biased) and 20 α Smears (15 random and 5 biased) 5 α TSA and 5 α Smears (equipment) 2 QC TSA 5% scan of interior and exterior surfaces	20 α TSA (15 random and 5 biased) and 20 α Smears (15 random and 5 biased) 5 α TSA and 5 α Smears (equipment) 2 QC TSA 5% scan of interior and exterior surfaces	No contamination at any location; all values below PDS unrestricted release levels	Transuranic and/or Uranium DCGLs as applicable. Initial sample net activity was greater than the Transuranic DCGL _w (100 dpm/100cm ²) at location 3 (490.6 dpm/100cm ²). The location was sealed, allowed to decay and re-surveyed. The re-survey result was less than the Transuranic DCGL _w , therefore, no further investigation is required. The re-survey result is the value reported in the TSA Data Summary.

Table E-4 Data Completeness Summary, Area 5-Group 16 Facilities

ANALYTE	Building/Area/Unit	Sample Number Planned (Real & QC)^A	Sample Number Taken (Real & QC)	Project Decisions (Conclusions) & Uncertainty	Comments (RIN, Analytical Method, Qualifications, etc.)
Radiological	Survey Area 5 Survey Unit: 988-5-003 Building 988 (interior and exterior)	20 α TSA (15 random and 5 biased) and 20 α Smears (15 random and 5 biased) 5 α TSA and 5 α Smears (equipment) 2 QC TSA 5% scan of interior and exterior surfaces	20 α TSA (15 random and 5 biased) and 20 α Smears (15 random and 5 biased) 5 α TSA and 5 α Smears (equipment) 2 QC TSA 5% scan of interior and exterior surfaces	No contamination at any location; all values below PDS unrestricted release levels	Transuranic and/or Uranium DCGs as applicable.
	Survey Area 5 Survey Unit: 988A-5-001 Building 988A (interior and exterior)	20 α TSA (15 random and 5 biased) and 20 α Smears (15 random and 5 biased) 10 α TSA and 10 α Smears (equipment) 2 QC TSA 25% scan of interior and exterior surfaces	20 α TSA (15 random and 5 biased) and 20 α Smears (15 random and 5 biased) 10 α TSA and 10 α Smears (equipment) 2 QC TSA 25% scan of interior and exterior surfaces	No contamination at any location; all values below PDS unrestricted release levels	Transuranic and/or Uranium DCGs as applicable.

Table E-4 Data Completeness Summary, Area 5-Group 16 Facilities

ANALYTE	Building/Area/Unit	Sample Number Planned (Real & QC) ^A	Sample Number Taken (Real & QC)	Project Decisions (Conclusions) & Uncertainty	Comments (RIN, Analytical Method, Qualifications, etc.)
Radiological	Survey Area 5 Survey Unit: 990-5-004 Building 990 (interior and exterior)	20 α TSA (15 random and 5 biased) and 20 α Smears (15 random and 5 biased) 5 α TSA and 5 α Smears (equipment) 2 QC TSA 5% scan of interior and exterior surfaces	20 α TSA (15 random and 5 biased) and 20 α Smears (15 random and 5 biased) 5 α TSA and 5 α Smears (equipment) 2 QC TSA 5% scan of interior and exterior surfaces	No contamination at any location; all values below PDS unrestricted release levels	Transuranic and/or Uranium DCGLs as applicable.
Radiological	Survey Area 5 Survey Unit: 990A-5-005 Building 990A (interior and exterior)	20 α TSA (15 random and 5 biased) and 20 α Smears (15 random and 5 biased) 5 α TSA and 5 α Smears (equipment) 2 QC TSA 5% scan of interior and exterior surfaces	20 α TSA (15 random and 5 biased) and 20 α Smears (15 random and 5 biased) 5 α TSA and 5 α Smears (equipment) 2 QC TSA 5% scan of interior and exterior surfaces	No contamination at any location; all values below PDS unrestricted release levels	Transuranic and/or Uranium DCGLs as applicable. Initial sample net activity was greater than the Transuranic DCGL _w (100 dpm/100cm ²) at location 13 (111.3 dpm/100cm ²). A concrete surface sample was taken at location 13 and analyzed by Canberra ISOCS gamma spectroscopy. No transuranic activity was detected. The sample activity was determined to be from uranium and/or naturally occurring isotopes. The gamma spectroscopy result was below the Uranium DCGL _w (5000 dpm/100cm ²). All survey results are less than the applicable DCGLs, therefore, no further investigation is required. On this basis, the Transuranic value for locations 13 is reported as zero (0.0) net activity in the TSA Data Summary.

Table E-4 Data Completeness Summary, Area 5-Group 16 Facilities

ANALYTE	Building/Area/Unit	Sample Number Planned (Real & QC) ^A	Sample Number Taken (Real & QC)	Project Decisions (Conclusions) & Uncertainty	Comments (RIN, Analytical Method, Qualifications, etc.)
Radiological	Survey Area 5 Survey Unit: 995-5-006 Building 995 (interior and exterior)	30 α TSA (15 random and 15 biased) and 30 α Smears (15 random and 15 biased) 15 α TSA and 15 α Smears (equipment) 3 QC TSA 5% scan of interior and exterior surfaces	30 α TSA (15 random and 15 biased) and 30 α Smears (15 random and 15 biased) 15 α TSA and 15 α Smears (equipment) 3 QC TSA 5% scan of interior and exterior surfaces	No contamination at any location; all values below PDS unrestricted release levels	Transuranic and/or Uranium DCGLs as applicable.

^A Number of asbestos samples required is an estimate only, final number of samples is at the discretion of the IH.